

Appendix C. Preliminary Drainage Study: French Hotel Project

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PRELIMINARY DRAINAGE STUDY

French Hotel Project

PROJECT ADDRESS:
31861 Camino Capistrano
APN: 121-150-28, 29 & 30

Almquist
31801 Paseo Adelanto
San Juan Capistrano, CA 92675



DATE: 10/09/2025

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STE 102-1187
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Section 1 – Project Description

Existing Conditions:

The project is located at 31841 & 31871 Camino Capistrano in San Juan Capistrano. It is bound by existing commercial/retail property to the north, El Adobe de Capistrano restaurant to the south, Camino Capistrano to the east, and train tracks and Los Rios Street to the west.

The existing site improvements include 2 existing buildings (adobes) to remain along Camino Capistrano (La Casa de Garcias), one wood frame barn to be relocated and integrated into the final project, two barns (one wood framed and one metal framed) to be demolished, a paved parking area and driveway, and mature landscaping.

Proposed Conditions:

The proposed project will be redeveloped with a new luxury hotel development. The 2-story Manuel Garcia adobe will be brought back to its previous 1880's use as a hotel. West of the adobe, a one-story building will be constructed with a basement for kitchen and event usage. A three-wing 2-story hotel is situated on the west end around the hotel pool and spa. An existing one-story building on the eastern property line will be renovated for future use. Lastly, a four-story car lift will be constructed for guest parking at the luxury hotel.

The existing site improvements will be demolished except for the two existing adobes/ buildings along the eastern property line adjacent to Camino Capistrano.

The total site area is 73,100 square feet.



Section 2 – Drainage Patterns

Existing Drainage Patterns:

The existing development has two storm water discharge locations from the site.

DA 1 consists of 0.087 acres which has approximately 100% impervious land cover. This land area includes half of the roof drainage from the existing buildings/adobes along Camino Capistrano and a small portion of the existing driveway. Runoff from the roof sheds directly into the street from the roof. There are no gutters on the existing buildings. Runoff is conveyed in the curb and gutter to the south where it is collected in a public catch basin at the intersection of Camino Capistrano and Del Obispo Street.

DA 2 consists of 1.592 acres which has approximately 41% impervious land cover. This area includes the balance of the property. Runoff sheet flows to the southwest corner of the property where it continues to sheet flow to the property to the south. From this location, runoff is conveyed via a V-gutter, continuing to the south where it ultimately discharges to Del Obispo Street. Ultimately, this runoff is collected in the public storm drain system in Del Obispo Street. The storm drain main in Del Obispo St. is connected to the storm drain system at the intersection of Camino Capistrano and Del Obispo.

The runoff from the site is tributary to San Juan Creek, which is tributary to the Pacific Ocean.

Proposed Drainage Patterns:

The developed drainage pattern is consistent with the existing drainage pattern.

The proposed development has two storm water discharge locations from the site.

DA 1 consists of 0.054 acres which has approximately 100% impervious land cover. This land area includes the public sidewalk along Camino Capistrano. A portion of runoff from the residential home, which is not a part of the project, also sheet flows towards Camino Capistrano in this DMA. Runoff is conveyed in the curb and gutter to the south where it is collected in a public catch basin at the intersection of Camino Capistrano and Del Obispo Street. Runoff from this area cannot be feasibly captured as part of the project and will maintain its existing drainage pattern.

DA 2 consists of 1.347 acres encompassing all the proposed buildings and drive aisle. Two grated inlets are proposed in the middle of the northerly and southerly property line to capture all storm water runoff. Roof drains from all buildings will be collected and piped to the nearest underground storm drain system. From the two grated inlets, stormwater will be piped into a series of three underground infiltration basins for water quality treatment and stormwater will infiltrate back into the native soil. The system is designed to capture the 100-year 24-hour storm. The underground infiltrations basin includes a gravel cover and base. The system is designed to infiltrate the 100-year 24-hour storm within 72-hrs. If the design storm is exceeded, or the system clogs due to lack of maintenance, storm water will overflow out of the two grated inlets and find relief through a



curb cut adjacent to the catch basins. From the curb cut, stormwater will flow along a landscape swale to the SWC of the property. From this location, runoff would follow the existing drainage pattern across the properties to the south, where it ultimately discharges to Del Obispo Street. Ultimately, this runoff is collected in the public storm drain system in Del Obispo Street. The storm drain main in Del Obispo St. is connected to the storm drain system at the intersection of Camino Capistrano and Del Obispo.

DA 3 consists of 0.200 acres of the proposed pool and spa area of the hotel. Stormwater will be captured by a series of atrium drains that will be piped to an underground infiltration basin for water quality treatment and stormwater will infiltrate back into the native soil. The system is designed to capture the 100-year 24-hour storm. The underground infiltration basin includes a gravel cover and base. The system is designed to infiltrate the 100-year 24-hour storm within 72-hrs. If the design storm is exceeded, or the system clogs due to lack of maintenance, storm water will overflow out of the grated inlets along the western property line and find relief to the south by means of sheet flow within the landscape buffer. Runoff would follow the existing drainage pattern across the properties to the south, where it ultimately discharges to Del Obispo Street. Ultimately, this runoff is collected in the public storm drain system in Del Obispo Street. The storm drain main in Del Obispo St. is connected to the storm drain system at the intersection of Camino Capistrano and Del Obispo.

DA 4 consists of 0.118 acres of at-grade landscape areas (100% pervious) at the lower level of the project. Runoff in this area will mostly infiltrate into the native soils since the design infiltration rate is approximately 0.70"/hr at the surface.

The runoff from the site is tributary to San Juan Creek, which is tributary to the Pacific Ocean.

Run-On:

The site does not include any run-on.

Hydromodification:

Ultimately, the project drainage is captured in a public storm drain system downstream of the property where storm water is conveyed to San Juan Creek. San Juan Creek is an engineered channel, therefore, HCOC is not a concern for the project. In addition, our project site is included in the Engineered Channels/Large River exemptions area as shown on the San Juan Capistrano Exemption Map.

Flood Zone:

This project is not in a flood zone.



Soil Classification:

Based on the Orange County Hydrology Manual maps, the site soils are classified as type B but according to the Web Soil Survey, the soils are classified as type C.



Section 3 – Methodology

Runoff Determination Methods

The Soil Conservation Service (SCS) Unit Hydrograph model was used to analyze the runoff discharges. The Technical Release (TR)-20 computer program was also applied to the SCS Unit Hydrograph method by utilizing HydroCAD computer program. The 24-hour storm duration was modeled with both a 25-year and 100-year storm event. This analysis was prepared in accordance with the Orange County Hydrology Manual (OCHM-1986).

Additionally, all onsite storm drain drainage pipes and structures have been designed to fully capture the 100-year storm event.

SCS TR-20 Runoff Method

The SCS TR-20 Unit Hydrograph Method input parameters are:

Soil Group: B

T_c= If the flow length was under 300', HydroCAD computed the T_c. If the flow length exceed 300', then the Orange County Hydrology Manual Nomograph was used and a direct entry was applied to the HydroCAD program. A TC of 5 minutes was used for initial subareas with calculated T_c values less than 5 minutes.

AMC: II

The proposed underground infiltration basins were all modeled in HydroCAD with an infiltration rate of 0.432 in/hr and 1.44 in/hr. These proposed LID BMP measures not only promote infiltration but also increase the time of concentration, further reducing the runoff discharge rate in the post-development condition.

See the calculations in the Appendix for the results.

Hydraulic Calculation Methods:

The Federal Highway Administration (FHWA) Hydraulic Toolbox program was used for this study to calculate pipe capacity and catch basin sizing. This is a federally approved program and is generally accepted in Orange County.



Section 4 – Calculations

Using HydroCAD software, the existing and proposed runoff for the project has been calculated for the 25- & 100-Year Storm Events. A model was created based on the drainage areas for the existing and proposed conditions. See the Appendix for details.

Section 5 – Summary

As shown in the calculations and table below, runoff from the project will be significantly decreased with the development of the project as most storm water is retained onsite. Since the project is able to maintain a runoff less than that of the pre-developed conditions, no adverse effects will occur to the ultimate downstream conveyance system.

25-yr Storm Event

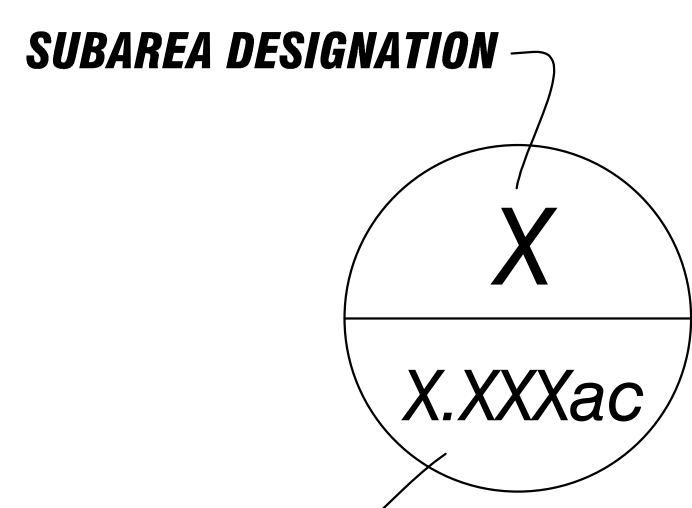
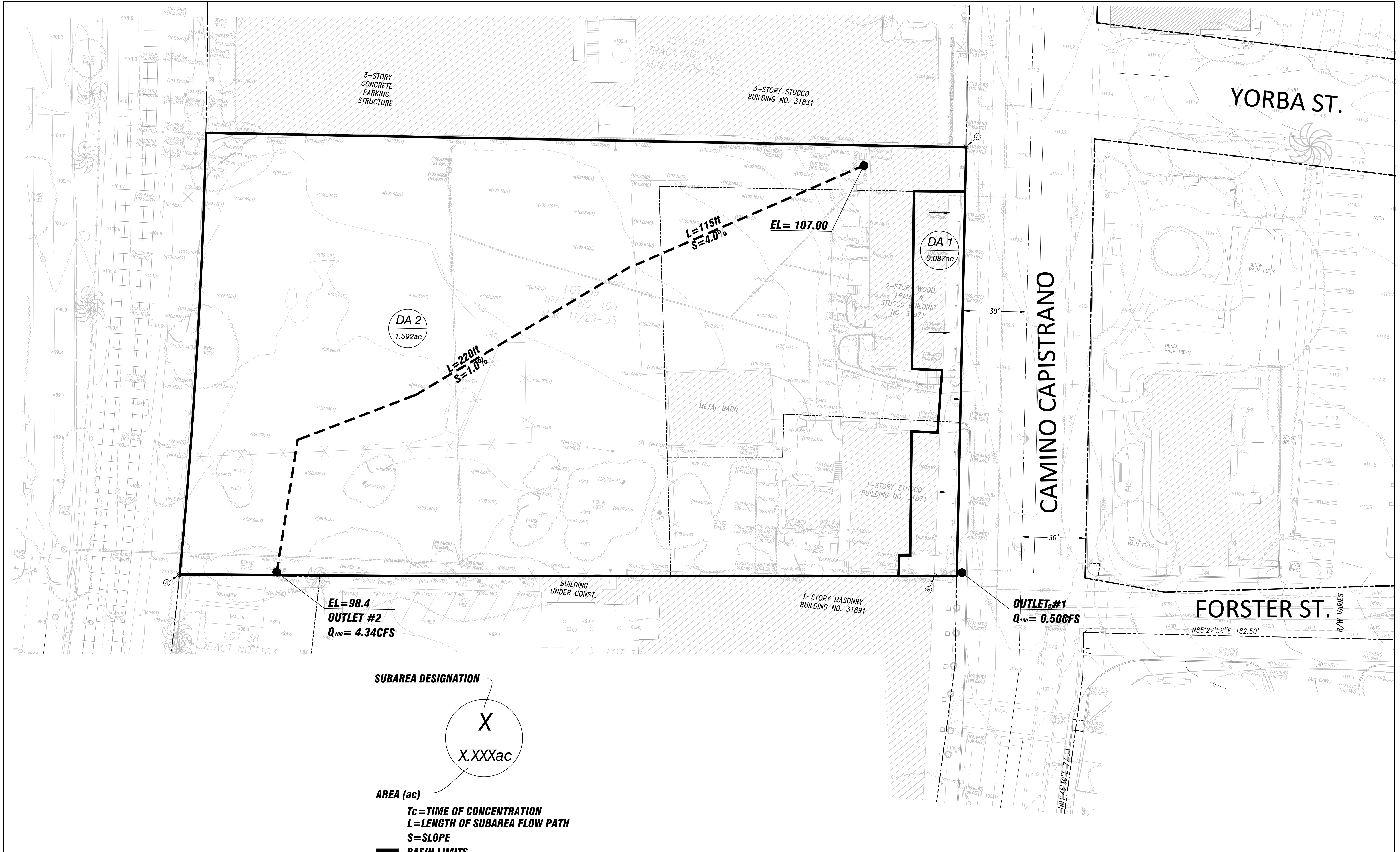
25-yr Storm	Camino Capistrano Contribution (Outlet 1) (cfs)	SWC Discharge (Outlet 2) (cfs)	Totals
Existing Condition	0.31	4.03	4.34
Proposed Condition	0.18	0.09	0.27
Difference	-0.13 (42%)	-3.84/ (95%)	-4.07 (93%)

100-yr Storm Event

100-yr Storm	Camino Capistrano Contribution (Outlet 1) (cfs)	SWC Discharge (Outlet 2) (cfs)	Totals
Existing Condition	0.41	5.41	5.82
Proposed Condition	0.23	0.16	0.39
Difference	-0.1 (44%)	-5.25 (97%)	-5.43 (93%)



Appendix



- Tc** = TIME OF CONCENTRATION
- L** = LENGTH OF SUBAREA FLOW PATH
- S** = SLOPE
- BASIN LIMITS
- - -** FLOW PATH
- FLOW DIRECTION

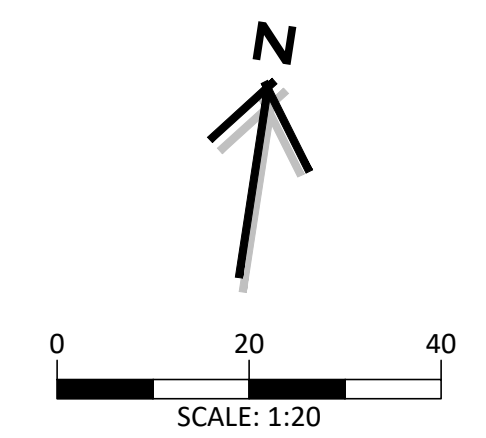
PRIVATE ENGINEER'S NOTICE TO CONTRACTOR
 THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS, AND TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THE PROTECTION OF AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY, ITS EMPLOYEES, AND AGENTS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE TO REPORT DISCREPANCIES IN PLANS AND/OR FIELD CONDITIONS IMMEDIATELY TO THE DESIGN ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DISCREPANCIES NOT SO REPORTED AND RESOLVED.

DIGALERT

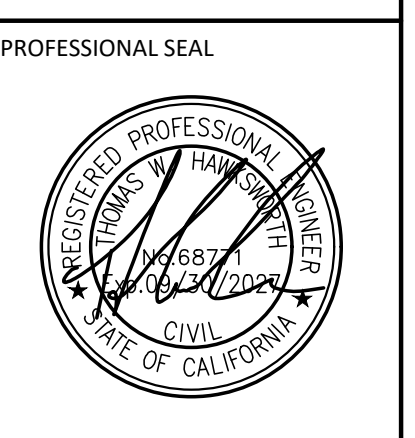
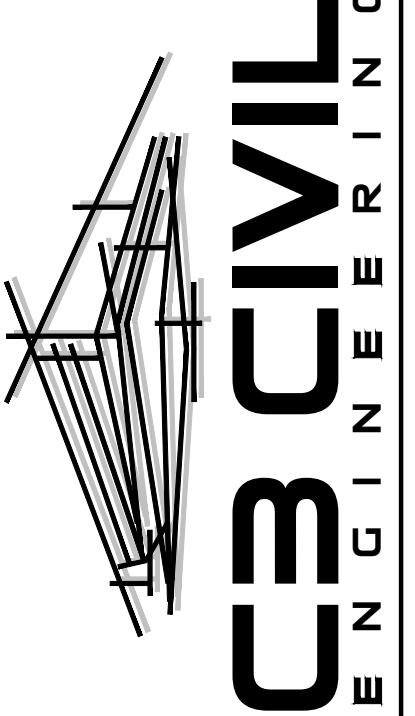
CALL BEFORE YOU DIG
 1-800-227-2600
 AT LEAST
 2 WORKING DAY
 NOTICE REQUIRED



REVISION RECORD	
#	DESCRIPTION

FRENCH HOTEL
 31861 CAMINO CAPISTRANO
 SAN JUAN CAPISTRANO, CA 92675

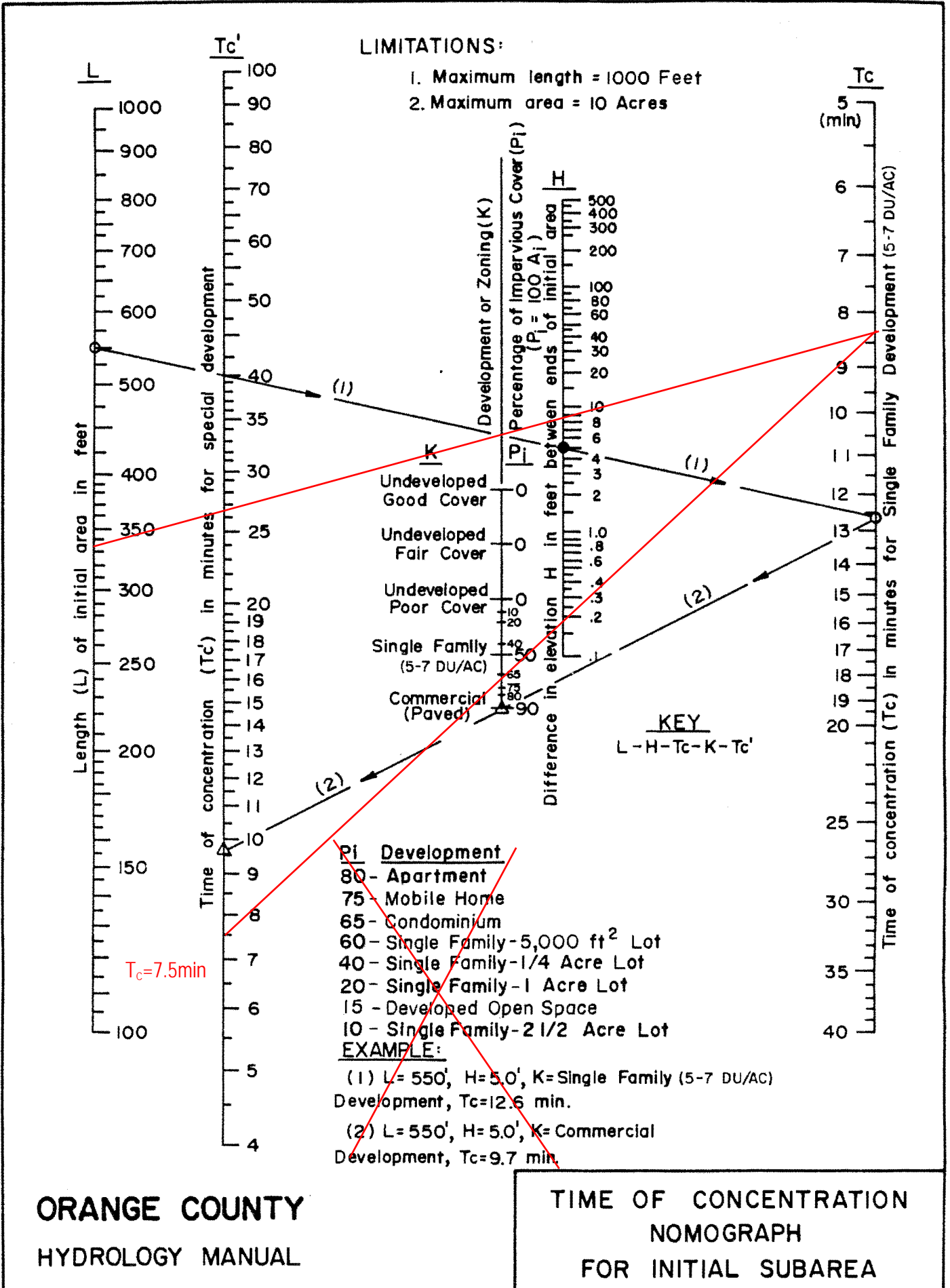
10870 W. FAIRVIEW DR
 STE 102-1187
 BOISE, ID 83713
 (208) 918-0928
 thomas@cbcivileng.com
 www.cbcivileng.com

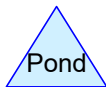
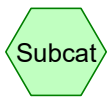
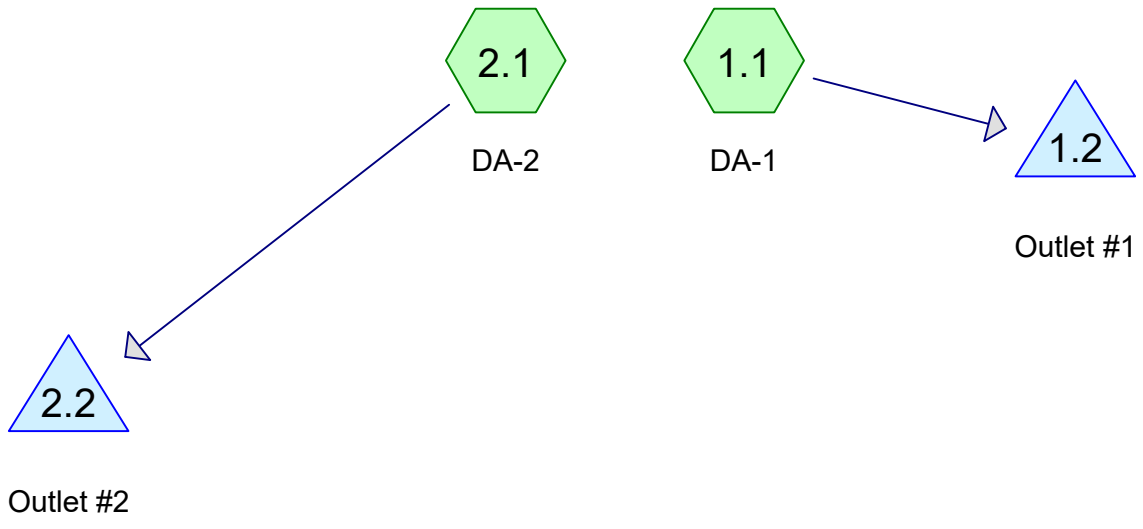


DATE: 10/09/2025
 CB JOB NO: 24-044
 DRAWN BY: NM
 CHECKED BY: TH

SHEET TITLE
EXISTING DRAINAGE MAP

SHEET NUMBER
7 of 9





Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1: DA-1 Runoff Area=3,796 sf 100.00% Impervious Runoff Depth=0.47"
Tc=5.0 min C=0.95 Runoff=0.31 cfs 148 cf

Subcatchment2.1: DA-2 Runoff Area=69,304 sf 40.70% Impervious Runoff Depth=0.33"
Tc=7.5 min C=0.68 Runoff=4.03 cfs 1,934 cf

Pond 1.2: Outlet #1 Inflow=0.31 cfs 148 cf
Primary=0.31 cfs 148 cf

Pond 2.2: Outlet #2 Inflow=4.03 cfs 1,934 cf
Primary=4.03 cfs 1,934 cf

Total Runoff Area = 73,100 sf Runoff Volume = 2,082 cf Average Runoff Depth = 0.34"
56.22% Pervious = 41,100 sf 43.78% Impervious = 32,000 sf

Summary for Subcatchment 1.1: DA-1

Runoff = 0.31 cfs @ 0.09 hrs, Volume= 148 cf, Depth= 0.47"

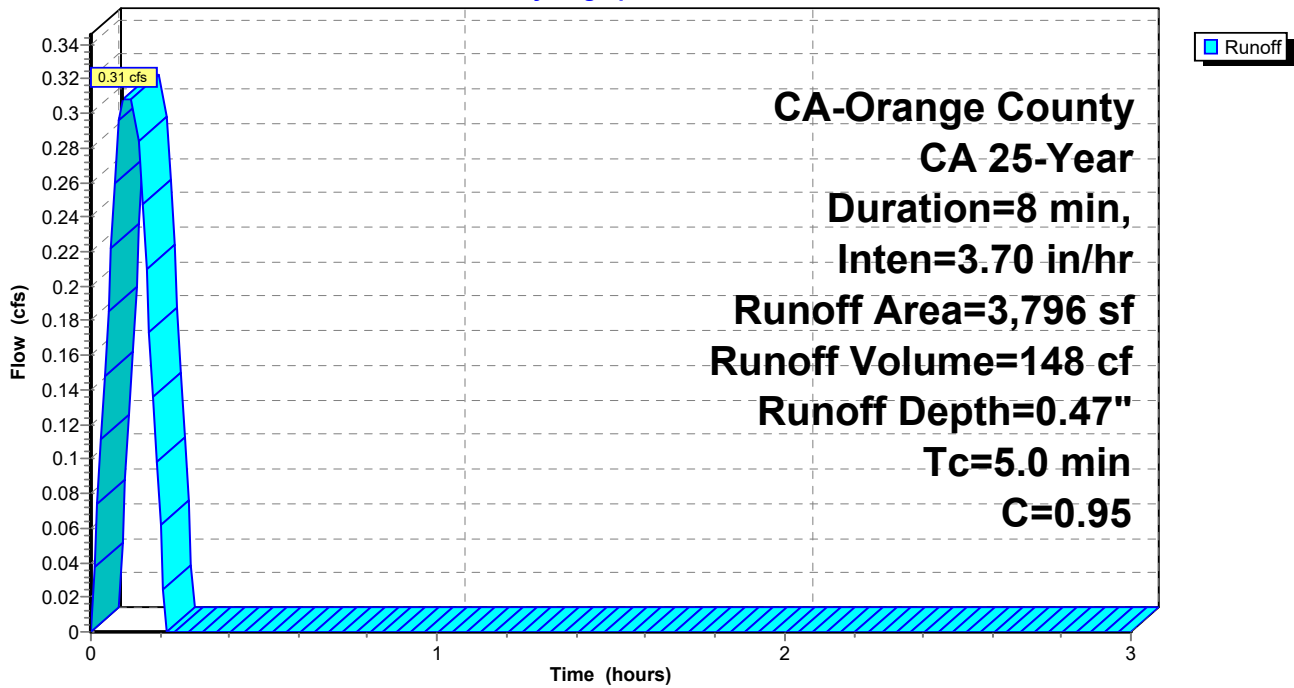
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 CA-Orange County, CA 25-Year Duration=8 min, Inten=3.70 in/hr

Area (sf)	C	Description
3,796	0.95	Ex. buildings along Camino Capistrano
3,796		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Ex. Building runoff

Subcatchment 1.1: DA-1

Hydrograph



Hydrograph for Subcatchment 1.1: DA-1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	1.02	0.00	2.04	0.00
0.02	0.07	1.04	0.00	2.06	0.00
0.04	0.15	1.06	0.00	2.08	0.00
0.06	0.22	1.08	0.00	2.10	0.00
0.08	0.30	1.10	0.00	2.12	0.00
0.10	0.31	1.12	0.00	2.14	0.00
0.12	0.31	1.14	0.00	2.16	0.00
0.14	0.28	1.16	0.00	2.18	0.00
0.16	0.21	1.18	0.00	2.20	0.00
0.18	0.14	1.20	0.00	2.22	0.00
0.20	0.06	1.22	0.00	2.24	0.00
0.22	0.00	1.24	0.00	2.26	0.00
0.24	0.00	1.26	0.00	2.28	0.00
0.26	0.00	1.28	0.00	2.30	0.00
0.28	0.00	1.30	0.00	2.32	0.00
0.30	0.00	1.32	0.00	2.34	0.00
0.32	0.00	1.34	0.00	2.36	0.00
0.34	0.00	1.36	0.00	2.38	0.00
0.36	0.00	1.38	0.00	2.40	0.00
0.38	0.00	1.40	0.00	2.42	0.00
0.40	0.00	1.42	0.00	2.44	0.00
0.42	0.00	1.44	0.00	2.46	0.00
0.44	0.00	1.46	0.00	2.48	0.00
0.46	0.00	1.48	0.00	2.50	0.00
0.48	0.00	1.50	0.00	2.52	0.00
0.50	0.00	1.52	0.00	2.54	0.00
0.52	0.00	1.54	0.00	2.56	0.00
0.54	0.00	1.56	0.00	2.58	0.00
0.56	0.00	1.58	0.00	2.60	0.00
0.58	0.00	1.60	0.00	2.62	0.00
0.60	0.00	1.62	0.00	2.64	0.00
0.62	0.00	1.64	0.00	2.66	0.00
0.64	0.00	1.66	0.00	2.68	0.00
0.66	0.00	1.68	0.00	2.70	0.00
0.68	0.00	1.70	0.00	2.72	0.00
0.70	0.00	1.72	0.00	2.74	0.00
0.72	0.00	1.74	0.00	2.76	0.00
0.74	0.00	1.76	0.00	2.78	0.00
0.76	0.00	1.78	0.00	2.80	0.00
0.78	0.00	1.80	0.00	2.82	0.00
0.80	0.00	1.82	0.00	2.84	0.00
0.82	0.00	1.84	0.00	2.86	0.00
0.84	0.00	1.86	0.00	2.88	0.00
0.86	0.00	1.88	0.00	2.90	0.00
0.88	0.00	1.90	0.00	2.92	0.00
0.90	0.00	1.92	0.00	2.94	0.00
0.92	0.00	1.94	0.00	2.96	0.00
0.94	0.00	1.96	0.00	2.98	0.00
0.96	0.00	1.98	0.00	3.00	0.00
0.98	0.00	2.00	0.00		
1.00	0.00	2.02	0.00		

Summary for Subcatchment 2.1: DA-2

Runoff = 4.03 cfs @ 0.13 hrs, Volume= 1,934 cf, Depth= 0.33"

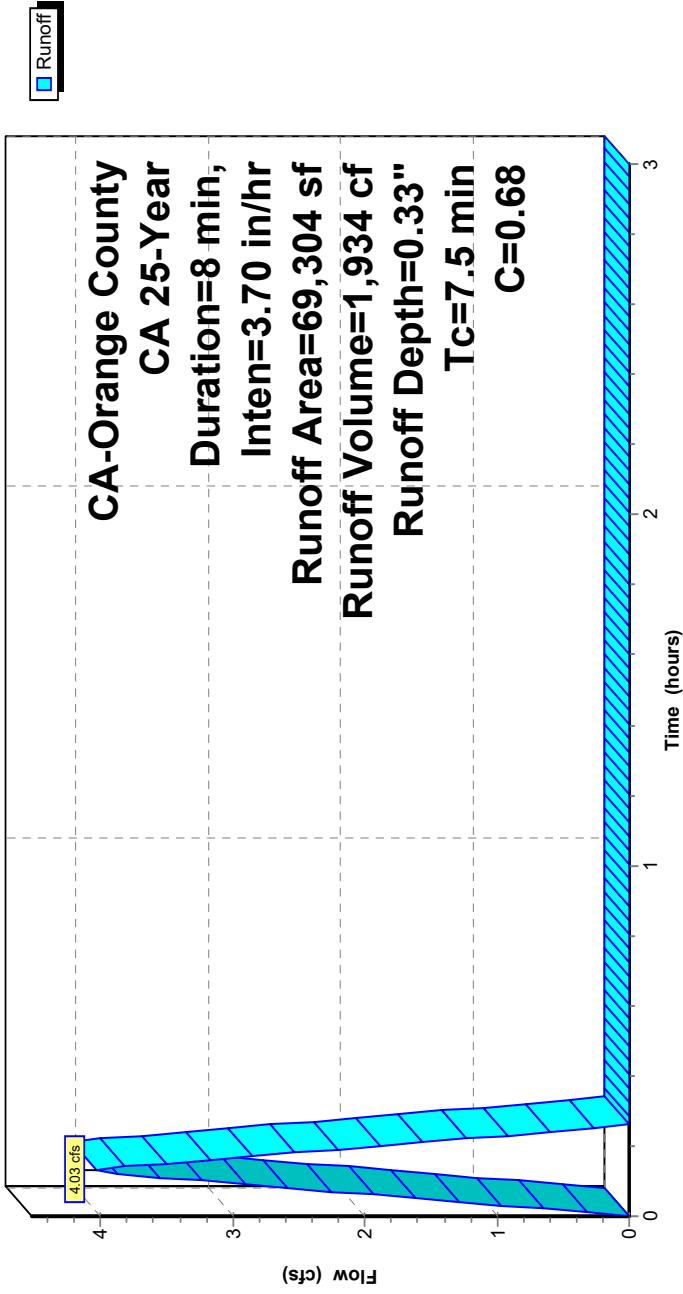
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 CA-Orange County, CA 25-Year Duration=8 min, Inten=3.70 in/hr

Area (sf)	C	Description
28,204	0.95	Roofs, HSG C
41,100	0.50	50-75% Grass cover, Fair, HSG C
69,304	0.68	Weighted Average
41,100		59.30% Pervious Area
28,204		40.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5					Direct Entry, Sheet Flow

Subcatchment 2.1: DA-2

Hydrograph



Hydrograph for Subcatchment 2.1: DA-2

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	1.02	0.00	2.04	0.00
0.02	0.65	1.04	0.00	2.06	0.00
0.04	1.29	1.06	0.00	2.08	0.00
0.06	1.94	1.08	0.00	2.10	0.00
0.08	2.58	1.10	0.00	2.12	0.00
0.10	3.23	1.12	0.00	2.14	0.00
0.12	3.87	1.14	0.00	2.16	0.00
0.14	3.82	1.16	0.00	2.18	0.00
0.16	3.17	1.18	0.00	2.20	0.00
0.18	2.53	1.20	0.00	2.22	0.00
0.20	1.88	1.22	0.00	2.24	0.00
0.22	1.24	1.24	0.00	2.26	0.00
0.24	0.59	1.26	0.00	2.28	0.00
0.26	0.00	1.28	0.00	2.30	0.00
0.28	0.00	1.30	0.00	2.32	0.00
0.30	0.00	1.32	0.00	2.34	0.00
0.32	0.00	1.34	0.00	2.36	0.00
0.34	0.00	1.36	0.00	2.38	0.00
0.36	0.00	1.38	0.00	2.40	0.00
0.38	0.00	1.40	0.00	2.42	0.00
0.40	0.00	1.42	0.00	2.44	0.00
0.42	0.00	1.44	0.00	2.46	0.00
0.44	0.00	1.46	0.00	2.48	0.00
0.46	0.00	1.48	0.00	2.50	0.00
0.48	0.00	1.50	0.00	2.52	0.00
0.50	0.00	1.52	0.00	2.54	0.00
0.52	0.00	1.54	0.00	2.56	0.00
0.54	0.00	1.56	0.00	2.58	0.00
0.56	0.00	1.58	0.00	2.60	0.00
0.58	0.00	1.60	0.00	2.62	0.00
0.60	0.00	1.62	0.00	2.64	0.00
0.62	0.00	1.64	0.00	2.66	0.00
0.64	0.00	1.66	0.00	2.68	0.00
0.66	0.00	1.68	0.00	2.70	0.00
0.68	0.00	1.70	0.00	2.72	0.00
0.70	0.00	1.72	0.00	2.74	0.00
0.72	0.00	1.74	0.00	2.76	0.00
0.74	0.00	1.76	0.00	2.78	0.00
0.76	0.00	1.78	0.00	2.80	0.00
0.78	0.00	1.80	0.00	2.82	0.00
0.80	0.00	1.82	0.00	2.84	0.00
0.82	0.00	1.84	0.00	2.86	0.00
0.84	0.00	1.86	0.00	2.88	0.00
0.86	0.00	1.88	0.00	2.90	0.00
0.88	0.00	1.90	0.00	2.92	0.00
0.90	0.00	1.92	0.00	2.94	0.00
0.92	0.00	1.94	0.00	2.96	0.00
0.94	0.00	1.96	0.00	2.98	0.00
0.96	0.00	1.98	0.00	3.00	0.00
0.98	0.00	2.00	0.00		
1.00	0.00	2.02	0.00		

Summary for Pond 1.2: Outlet #1

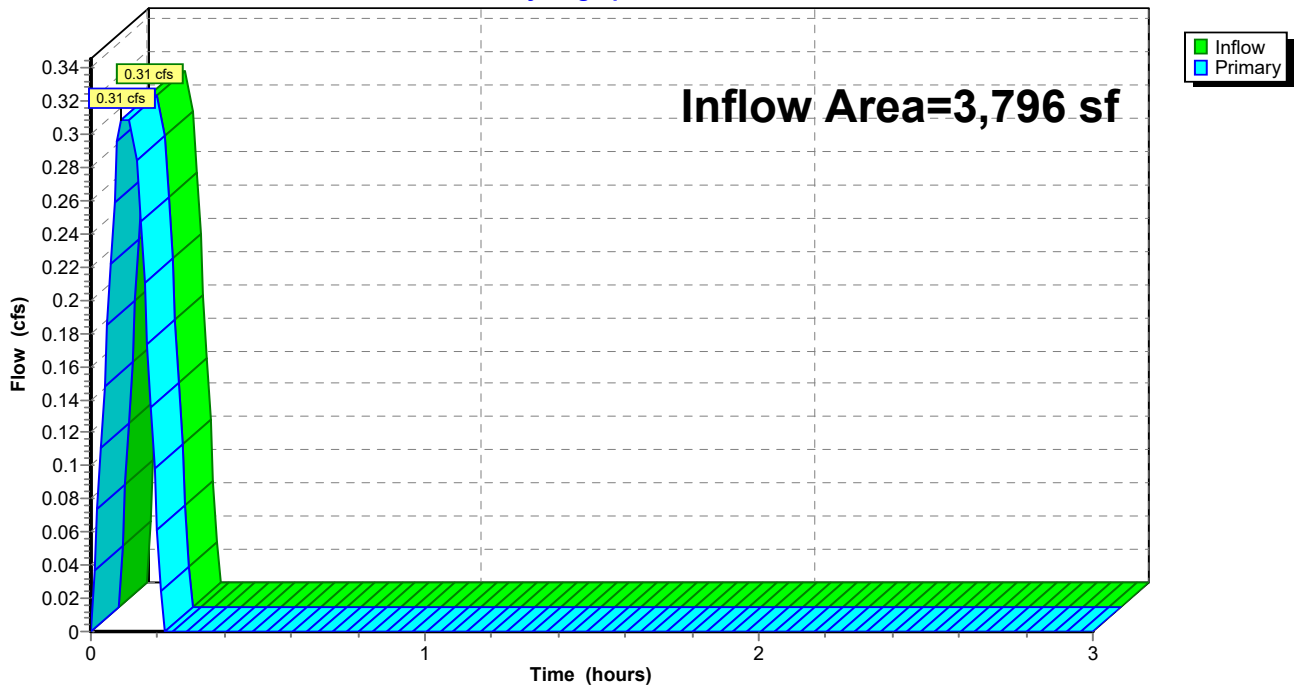
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3,796 sf, 100.00% Impervious, Inflow Depth = 0.47" for 25-Year event
Inflow = 0.31 cfs @ 0.09 hrs, Volume= 148 cf
Primary = 0.31 cfs @ 0.09 hrs, Volume= 148 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Pond 1.2: Outlet #1

Hydrograph



Hydrograph for Pond 1.2: Outlet #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	2.55	0.00		0.00
0.05	0.19		0.19	2.60	0.00		0.00
0.10	0.31		0.31	2.65	0.00		0.00
0.15	0.25		0.25	2.70	0.00		0.00
0.20	0.06		0.06	2.75	0.00		0.00
0.25	0.00		0.00	2.80	0.00		0.00
0.30	0.00		0.00	2.85	0.00		0.00
0.35	0.00		0.00	2.90	0.00		0.00
0.40	0.00		0.00	2.95	0.00		0.00
0.45	0.00		0.00	3.00	0.00		0.00
0.50	0.00		0.00				
0.55	0.00		0.00				
0.60	0.00		0.00				
0.65	0.00		0.00				
0.70	0.00		0.00				
0.75	0.00		0.00				
0.80	0.00		0.00				
0.85	0.00		0.00				
0.90	0.00		0.00				
0.95	0.00		0.00				
1.00	0.00		0.00				
1.05	0.00		0.00				
1.10	0.00		0.00				
1.15	0.00		0.00				
1.20	0.00		0.00				
1.25	0.00		0.00				
1.30	0.00		0.00				
1.35	0.00		0.00				
1.40	0.00		0.00				
1.45	0.00		0.00				
1.50	0.00		0.00				
1.55	0.00		0.00				
1.60	0.00		0.00				
1.65	0.00		0.00				
1.70	0.00		0.00				
1.75	0.00		0.00				
1.80	0.00		0.00				
1.85	0.00		0.00				
1.90	0.00		0.00				
1.95	0.00		0.00				
2.00	0.00		0.00				
2.05	0.00		0.00				
2.10	0.00		0.00				
2.15	0.00		0.00				
2.20	0.00		0.00				
2.25	0.00		0.00				
2.30	0.00		0.00				
2.35	0.00		0.00				
2.40	0.00		0.00				
2.45	0.00		0.00				
2.50	0.00		0.00				

Summary for Pond 2.2: Outlet #2

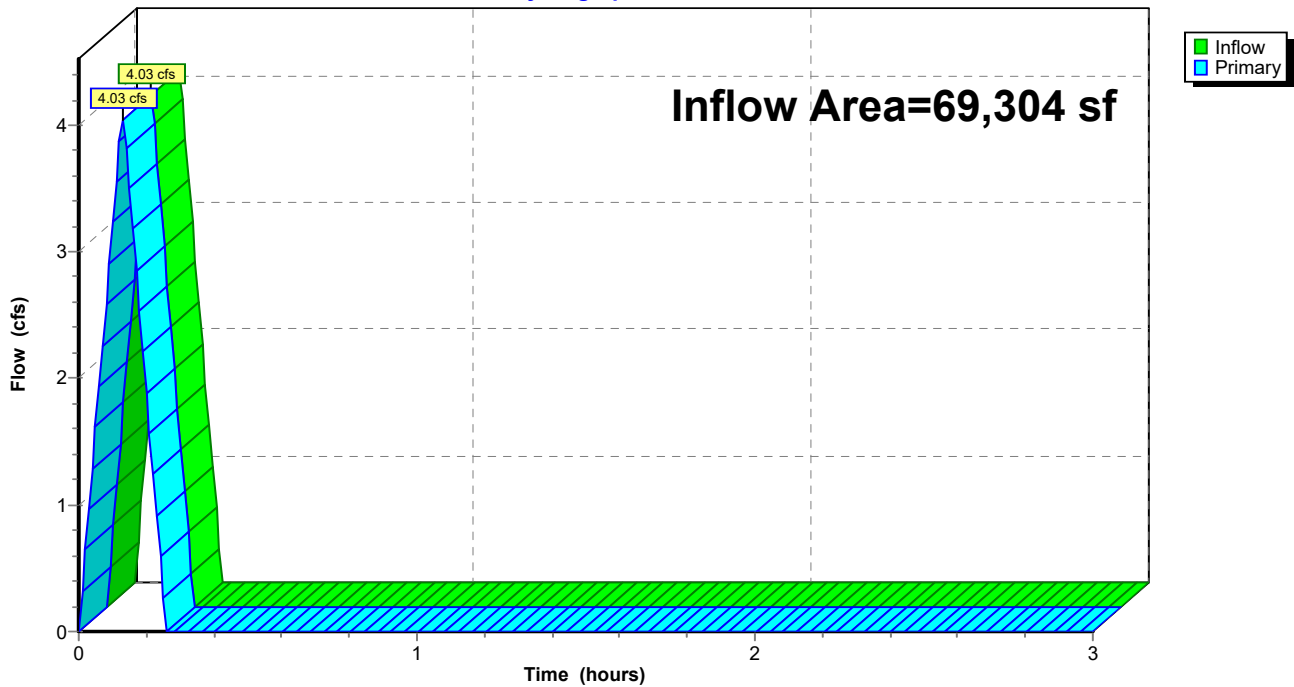
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69,304 sf, 40.70% Impervious, Inflow Depth = 0.33" for 25-Year event
 Inflow = 4.03 cfs @ 0.13 hrs, Volume= 1,934 cf
 Primary = 4.03 cfs @ 0.13 hrs, Volume= 1,934 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Pond 2.2: Outlet #2

Hydrograph



Hydrograph for Pond 2.2: Outlet #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	2.55	0.00		0.00
0.05	1.61		1.61	2.60	0.00		0.00
0.10	3.23		3.23	2.65	0.00		0.00
0.15	3.50		3.50	2.70	0.00		0.00
0.20	1.88		1.88	2.75	0.00		0.00
0.25	0.27		0.27	2.80	0.00		0.00
0.30	0.00		0.00	2.85	0.00		0.00
0.35	0.00		0.00	2.90	0.00		0.00
0.40	0.00		0.00	2.95	0.00		0.00
0.45	0.00		0.00	3.00	0.00		0.00
0.50	0.00		0.00				
0.55	0.00		0.00				
0.60	0.00		0.00				
0.65	0.00		0.00				
0.70	0.00		0.00				
0.75	0.00		0.00				
0.80	0.00		0.00				
0.85	0.00		0.00				
0.90	0.00		0.00				
0.95	0.00		0.00				
1.00	0.00		0.00				
1.05	0.00		0.00				
1.10	0.00		0.00				
1.15	0.00		0.00				
1.20	0.00		0.00				
1.25	0.00		0.00				
1.30	0.00		0.00				
1.35	0.00		0.00				
1.40	0.00		0.00				
1.45	0.00		0.00				
1.50	0.00		0.00				
1.55	0.00		0.00				
1.60	0.00		0.00				
1.65	0.00		0.00				
1.70	0.00		0.00				
1.75	0.00		0.00				
1.80	0.00		0.00				
1.85	0.00		0.00				
1.90	0.00		0.00				
1.95	0.00		0.00				
2.00	0.00		0.00				
2.05	0.00		0.00				
2.10	0.00		0.00				
2.15	0.00		0.00				
2.20	0.00		0.00				
2.25	0.00		0.00				
2.30	0.00		0.00				
2.35	0.00		0.00				
2.40	0.00		0.00				
2.45	0.00		0.00				
2.50	0.00		0.00				

Time span=0.00-3.00 hrs, dt=0.01 hrs, 301 points
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1.1: DA-1 Runoff Area=3,796 sf 100.00% Impervious Runoff Depth=0.63"
Tc=5.0 min C=0.95 Runoff=0.41 cfs 198 cf

Subcatchment2.1: DA-2 Runoff Area=69,304 sf 40.70% Impervious Runoff Depth=0.45"
Tc=7.5 min C=0.68 Runoff=5.41 cfs 2,593 cf

Pond 1.2: Outlet #1 Inflow=0.41 cfs 198 cf
Primary=0.41 cfs 198 cf

Pond 2.2: Outlet #2 Inflow=5.41 cfs 2,593 cf
Primary=5.41 cfs 2,593 cf

Total Runoff Area = 73,100 sf Runoff Volume = 2,791 cf Average Runoff Depth = 0.46"
56.22% Pervious = 41,100 sf 43.78% Impervious = 32,000 sf

Summary for Subcatchment 1.1: DA-1

Runoff = 0.41 cfs @ 0.09 hrs, Volume= 198 cf, Depth= 0.63"

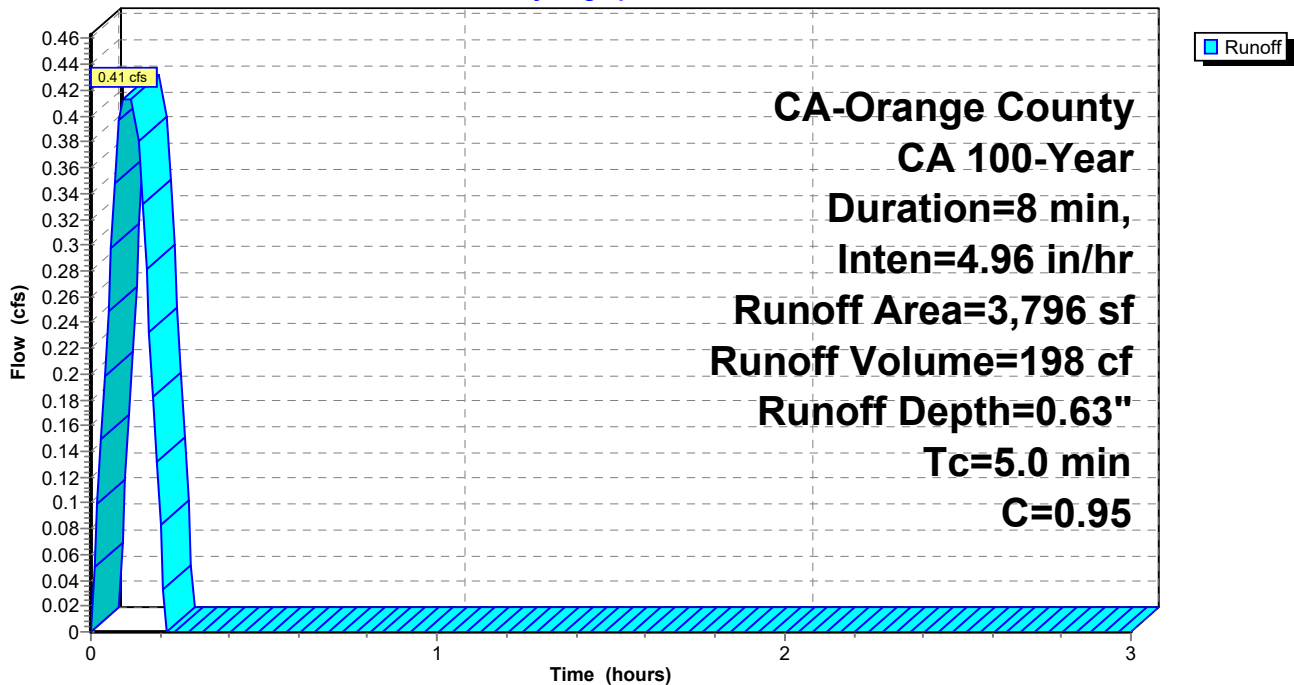
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 CA-Orange County, CA 100-Year Duration=8 min, Inten=4.96 in/hr

Area (sf)	C	Description
3,796	0.95	Ex. buildings along Camino Capistrano
3,796		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Ex. Building runoff

Subcatchment 1.1: DA-1

Hydrograph



Hydrograph for Subcatchment 1.1: DA-1

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	1.02	0.00	2.04	0.00
0.02	0.10	1.04	0.00	2.06	0.00
0.04	0.20	1.06	0.00	2.08	0.00
0.06	0.30	1.08	0.00	2.10	0.00
0.08	0.40	1.10	0.00	2.12	0.00
0.10	0.41	1.12	0.00	2.14	0.00
0.12	0.41	1.14	0.00	2.16	0.00
0.14	0.38	1.16	0.00	2.18	0.00
0.16	0.28	1.18	0.00	2.20	0.00
0.18	0.18	1.20	0.00	2.22	0.00
0.20	0.08	1.22	0.00	2.24	0.00
0.22	0.00	1.24	0.00	2.26	0.00
0.24	0.00	1.26	0.00	2.28	0.00
0.26	0.00	1.28	0.00	2.30	0.00
0.28	0.00	1.30	0.00	2.32	0.00
0.30	0.00	1.32	0.00	2.34	0.00
0.32	0.00	1.34	0.00	2.36	0.00
0.34	0.00	1.36	0.00	2.38	0.00
0.36	0.00	1.38	0.00	2.40	0.00
0.38	0.00	1.40	0.00	2.42	0.00
0.40	0.00	1.42	0.00	2.44	0.00
0.42	0.00	1.44	0.00	2.46	0.00
0.44	0.00	1.46	0.00	2.48	0.00
0.46	0.00	1.48	0.00	2.50	0.00
0.48	0.00	1.50	0.00	2.52	0.00
0.50	0.00	1.52	0.00	2.54	0.00
0.52	0.00	1.54	0.00	2.56	0.00
0.54	0.00	1.56	0.00	2.58	0.00
0.56	0.00	1.58	0.00	2.60	0.00
0.58	0.00	1.60	0.00	2.62	0.00
0.60	0.00	1.62	0.00	2.64	0.00
0.62	0.00	1.64	0.00	2.66	0.00
0.64	0.00	1.66	0.00	2.68	0.00
0.66	0.00	1.68	0.00	2.70	0.00
0.68	0.00	1.70	0.00	2.72	0.00
0.70	0.00	1.72	0.00	2.74	0.00
0.72	0.00	1.74	0.00	2.76	0.00
0.74	0.00	1.76	0.00	2.78	0.00
0.76	0.00	1.78	0.00	2.80	0.00
0.78	0.00	1.80	0.00	2.82	0.00
0.80	0.00	1.82	0.00	2.84	0.00
0.82	0.00	1.84	0.00	2.86	0.00
0.84	0.00	1.86	0.00	2.88	0.00
0.86	0.00	1.88	0.00	2.90	0.00
0.88	0.00	1.90	0.00	2.92	0.00
0.90	0.00	1.92	0.00	2.94	0.00
0.92	0.00	1.94	0.00	2.96	0.00
0.94	0.00	1.96	0.00	2.98	0.00
0.96	0.00	1.98	0.00	3.00	0.00
0.98	0.00	2.00	0.00		
1.00	0.00	2.02	0.00		

Summary for Subcatchment 2.1: DA-2

Runoff = 5.41 cfs @ 0.13 hrs, Volume= 2,593 cf, Depth= 0.45"

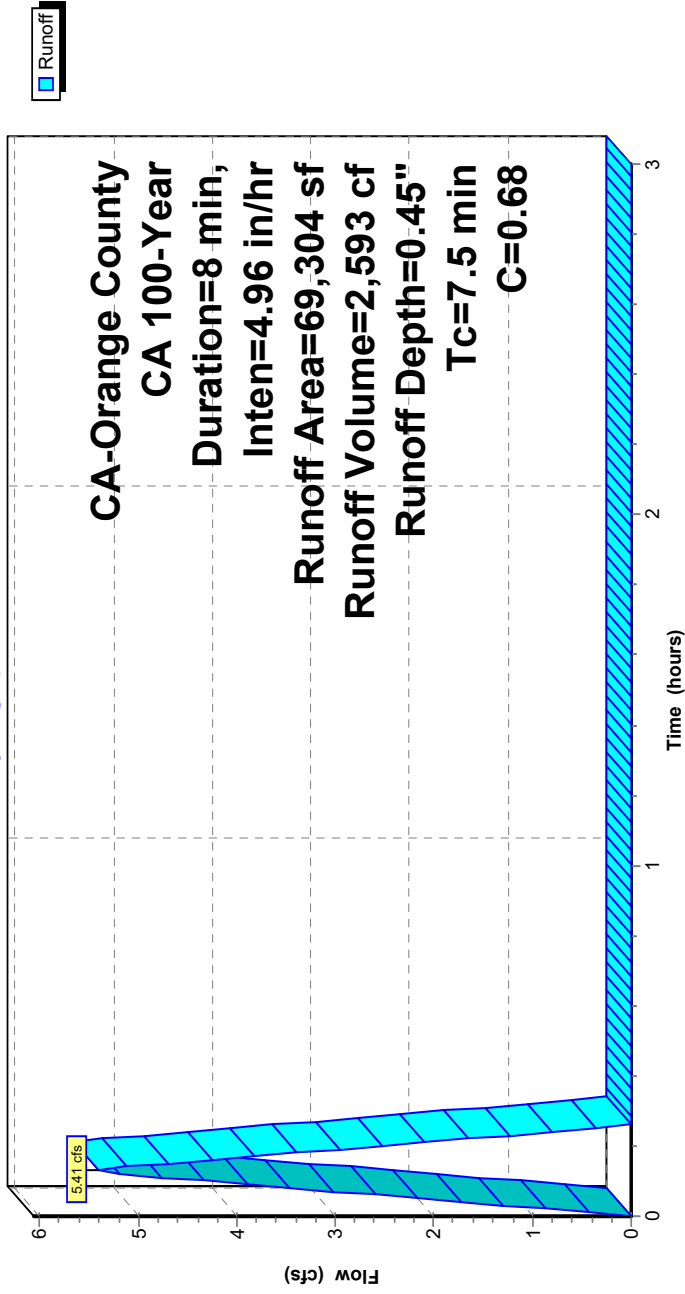
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
 CA-Orange County, CA 100-Year Duration=8 min, Inten=4.96 in/hr

Area (sf)	C	Description
28,204	0.95	Roofs, HSG C
41,100	0.50	50-75% Grass cover, Fair, HSG C
69,304	0.68	Weighted Average
41,100		59.30% Pervious Area
28,204		40.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5					Direct Entry, Sheet Flow

Subcatchment 2.1: DA-2

Hydrograph



Hydrograph for Subcatchment 2.1: DA-2

Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)	Time (hours)	Runoff (cfs)
0.00	0.00	1.02	0.00	2.04	0.00
0.02	0.87	1.04	0.00	2.06	0.00
0.04	1.73	1.06	0.00	2.08	0.00
0.06	2.60	1.08	0.00	2.10	0.00
0.08	3.46	1.10	0.00	2.12	0.00
0.10	4.33	1.12	0.00	2.14	0.00
0.12	5.19	1.14	0.00	2.16	0.00
0.14	5.12	1.16	0.00	2.18	0.00
0.16	4.25	1.18	0.00	2.20	0.00
0.18	3.39	1.20	0.00	2.22	0.00
0.20	2.52	1.22	0.00	2.24	0.00
0.22	1.66	1.24	0.00	2.26	0.00
0.24	0.79	1.26	0.00	2.28	0.00
0.26	0.00	1.28	0.00	2.30	0.00
0.28	0.00	1.30	0.00	2.32	0.00
0.30	0.00	1.32	0.00	2.34	0.00
0.32	0.00	1.34	0.00	2.36	0.00
0.34	0.00	1.36	0.00	2.38	0.00
0.36	0.00	1.38	0.00	2.40	0.00
0.38	0.00	1.40	0.00	2.42	0.00
0.40	0.00	1.42	0.00	2.44	0.00
0.42	0.00	1.44	0.00	2.46	0.00
0.44	0.00	1.46	0.00	2.48	0.00
0.46	0.00	1.48	0.00	2.50	0.00
0.48	0.00	1.50	0.00	2.52	0.00
0.50	0.00	1.52	0.00	2.54	0.00
0.52	0.00	1.54	0.00	2.56	0.00
0.54	0.00	1.56	0.00	2.58	0.00
0.56	0.00	1.58	0.00	2.60	0.00
0.58	0.00	1.60	0.00	2.62	0.00
0.60	0.00	1.62	0.00	2.64	0.00
0.62	0.00	1.64	0.00	2.66	0.00
0.64	0.00	1.66	0.00	2.68	0.00
0.66	0.00	1.68	0.00	2.70	0.00
0.68	0.00	1.70	0.00	2.72	0.00
0.70	0.00	1.72	0.00	2.74	0.00
0.72	0.00	1.74	0.00	2.76	0.00
0.74	0.00	1.76	0.00	2.78	0.00
0.76	0.00	1.78	0.00	2.80	0.00
0.78	0.00	1.80	0.00	2.82	0.00
0.80	0.00	1.82	0.00	2.84	0.00
0.82	0.00	1.84	0.00	2.86	0.00
0.84	0.00	1.86	0.00	2.88	0.00
0.86	0.00	1.88	0.00	2.90	0.00
0.88	0.00	1.90	0.00	2.92	0.00
0.90	0.00	1.92	0.00	2.94	0.00
0.92	0.00	1.94	0.00	2.96	0.00
0.94	0.00	1.96	0.00	2.98	0.00
0.96	0.00	1.98	0.00	3.00	0.00
0.98	0.00	2.00	0.00		
1.00	0.00	2.02	0.00		

Summary for Pond 1.2: Outlet #1

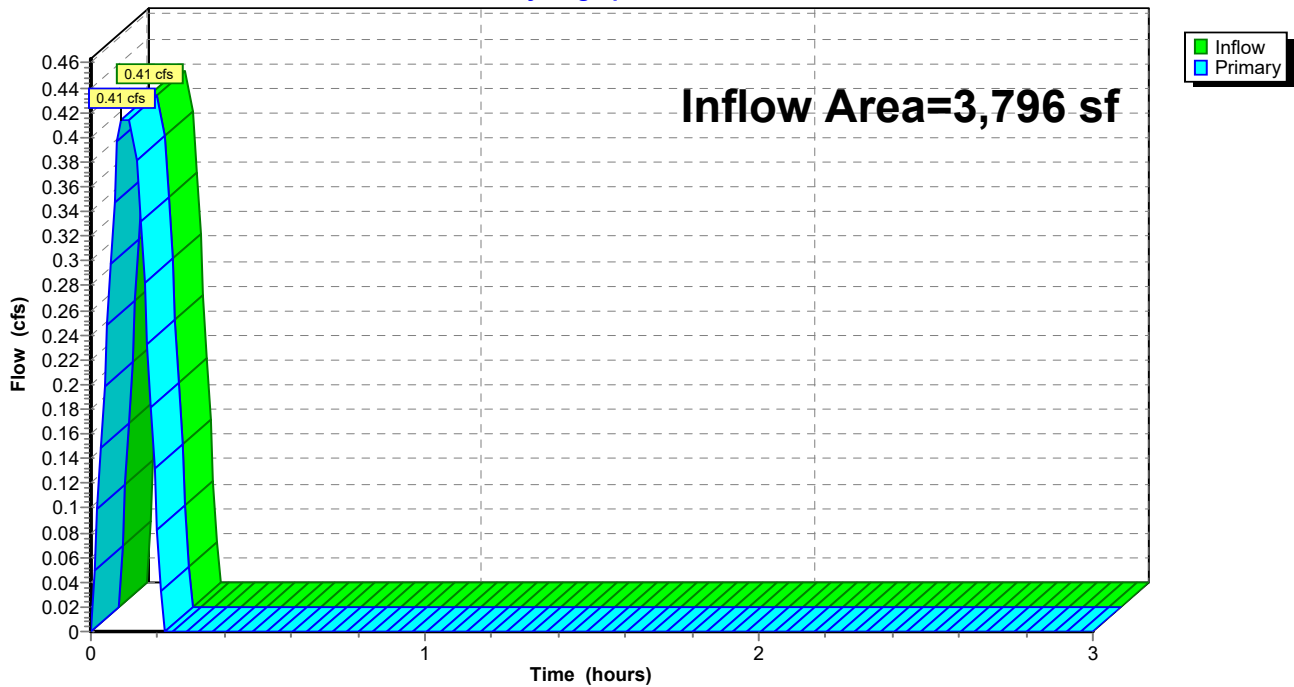
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3,796 sf, 100.00% Impervious, Inflow Depth = 0.63" for 100-Year event
 Inflow = 0.41 cfs @ 0.09 hrs, Volume= 198 cf
 Primary = 0.41 cfs @ 0.09 hrs, Volume= 198 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Pond 1.2: Outlet #1

Hydrograph



Hydrograph for Pond 1.2: Outlet #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	2.55	0.00		0.00
0.05	0.25		0.25	2.60	0.00		0.00
0.10	0.41		0.41	2.65	0.00		0.00
0.15	0.33		0.33	2.70	0.00		0.00
0.20	0.08		0.08	2.75	0.00		0.00
0.25	0.00		0.00	2.80	0.00		0.00
0.30	0.00		0.00	2.85	0.00		0.00
0.35	0.00		0.00	2.90	0.00		0.00
0.40	0.00		0.00	2.95	0.00		0.00
0.45	0.00		0.00	3.00	0.00		0.00
0.50	0.00		0.00				
0.55	0.00		0.00				
0.60	0.00		0.00				
0.65	0.00		0.00				
0.70	0.00		0.00				
0.75	0.00		0.00				
0.80	0.00		0.00				
0.85	0.00		0.00				
0.90	0.00		0.00				
0.95	0.00		0.00				
1.00	0.00		0.00				
1.05	0.00		0.00				
1.10	0.00		0.00				
1.15	0.00		0.00				
1.20	0.00		0.00				
1.25	0.00		0.00				
1.30	0.00		0.00				
1.35	0.00		0.00				
1.40	0.00		0.00				
1.45	0.00		0.00				
1.50	0.00		0.00				
1.55	0.00		0.00				
1.60	0.00		0.00				
1.65	0.00		0.00				
1.70	0.00		0.00				
1.75	0.00		0.00				
1.80	0.00		0.00				
1.85	0.00		0.00				
1.90	0.00		0.00				
1.95	0.00		0.00				
2.00	0.00		0.00				
2.05	0.00		0.00				
2.10	0.00		0.00				
2.15	0.00		0.00				
2.20	0.00		0.00				
2.25	0.00		0.00				
2.30	0.00		0.00				
2.35	0.00		0.00				
2.40	0.00		0.00				
2.45	0.00		0.00				
2.50	0.00		0.00				

Summary for Pond 2.2: Outlet #2

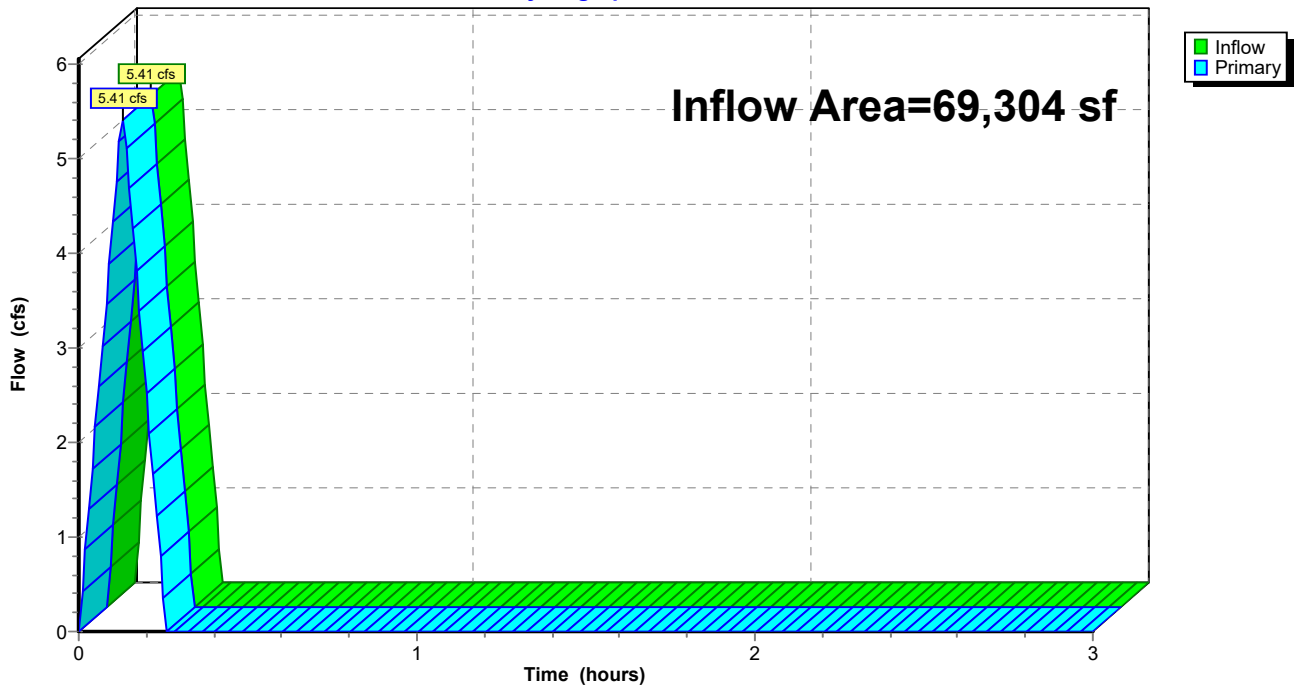
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 69,304 sf, 40.70% Impervious, Inflow Depth = 0.45" for 100-Year event
 Inflow = 5.41 cfs @ 0.13 hrs, Volume= 2,593 cf
 Primary = 5.41 cfs @ 0.13 hrs, Volume= 2,593 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

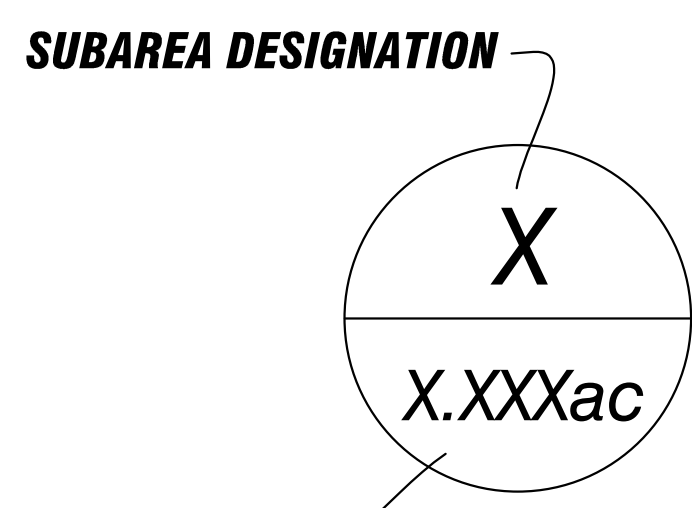
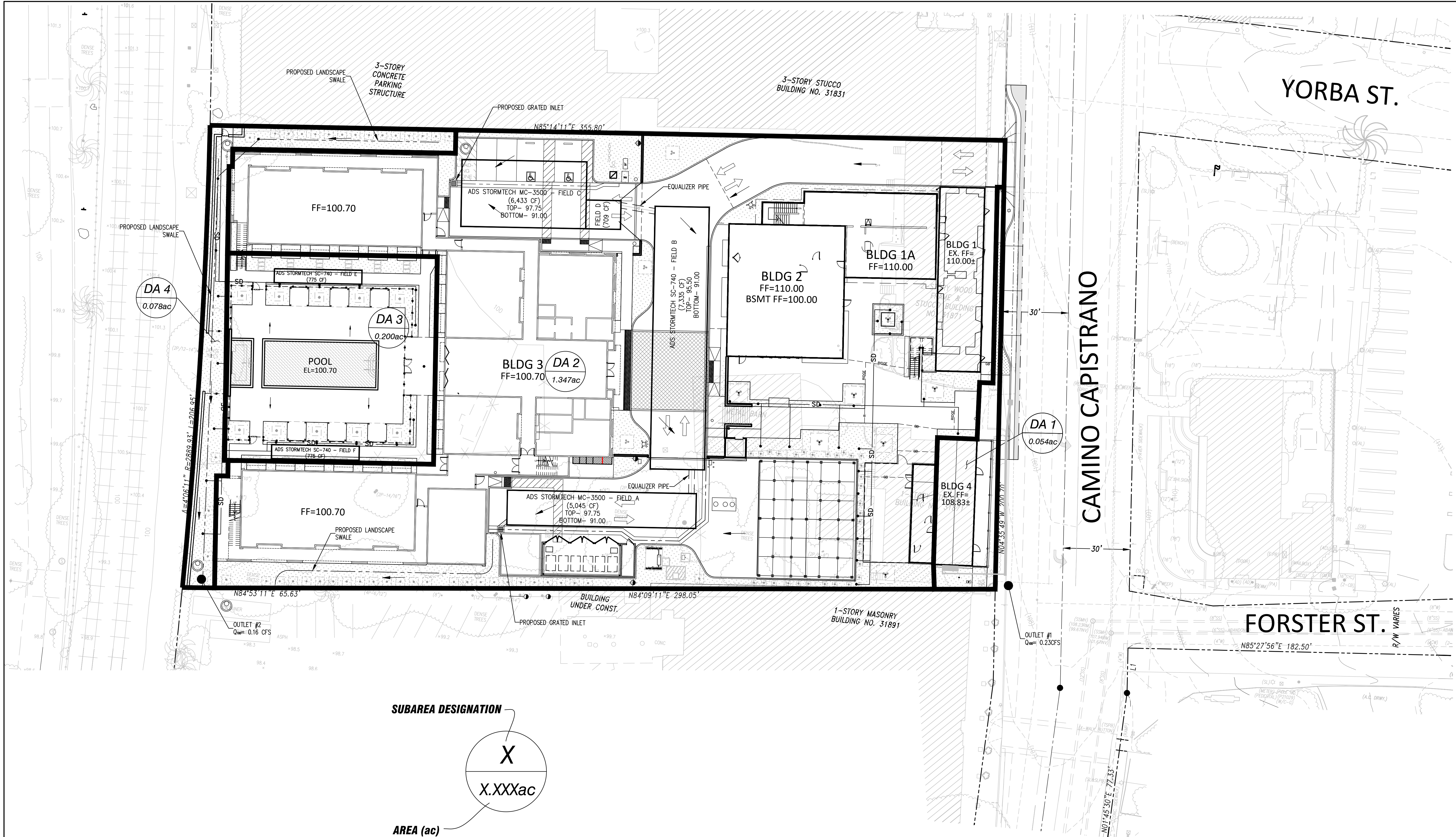
Pond 2.2: Outlet #2

Hydrograph



Hydrograph for Pond 2.2: Outlet #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	2.55	0.00		0.00
0.05	2.16		2.16	2.60	0.00		0.00
0.10	4.33		4.33	2.65	0.00		0.00
0.15	4.69		4.69	2.70	0.00		0.00
0.20	2.52		2.52	2.75	0.00		0.00
0.25	0.36		0.36	2.80	0.00		0.00
0.30	0.00		0.00	2.85	0.00		0.00
0.35	0.00		0.00	2.90	0.00		0.00
0.40	0.00		0.00	2.95	0.00		0.00
0.45	0.00		0.00	3.00	0.00		0.00
0.50	0.00		0.00				
0.55	0.00		0.00				
0.60	0.00		0.00				
0.65	0.00		0.00				
0.70	0.00		0.00				
0.75	0.00		0.00				
0.80	0.00		0.00				
0.85	0.00		0.00				
0.90	0.00		0.00				
0.95	0.00		0.00				
1.00	0.00		0.00				
1.05	0.00		0.00				
1.10	0.00		0.00				
1.15	0.00		0.00				
1.20	0.00		0.00				
1.25	0.00		0.00				
1.30	0.00		0.00				
1.35	0.00		0.00				
1.40	0.00		0.00				
1.45	0.00		0.00				
1.50	0.00		0.00				
1.55	0.00		0.00				
1.60	0.00		0.00				
1.65	0.00		0.00				
1.70	0.00		0.00				
1.75	0.00		0.00				
1.80	0.00		0.00				
1.85	0.00		0.00				
1.90	0.00		0.00				
1.95	0.00		0.00				
2.00	0.00		0.00				
2.05	0.00		0.00				
2.10	0.00		0.00				
2.15	0.00		0.00				
2.20	0.00		0.00				
2.25	0.00		0.00				
2.30	0.00		0.00				
2.35	0.00		0.00				
2.40	0.00		0.00				
2.45	0.00		0.00				
2.50	0.00		0.00				



- AREA (ac)**
- T_c**=TIME OF CONCENTRATION
 - L**=LENGTH OF SUBAREA FLOW PATH
 - S**=SLOPE
 - BASIN LIMITS
 - - -** FLOW PATH
 - FLOW DIRECTION

PRIVATE ENGINEER'S NOTICE TO CONTRACTOR

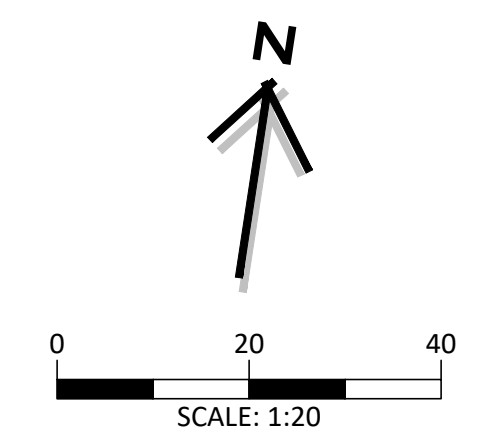
THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITIES OR STRUCTURES SHOWN IN THESE PLANS ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS, AND TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT THOSE SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES SHOWN, AND ANY OTHER LINES OR STRUCTURES NOT SHOWN ON THESE PLANS, AND IS RESPONSIBLE FOR THE PROTECTION OF AND ANY DAMAGE TO THESE LINES OR STRUCTURES.

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE CITY, ITS EMPLOYEES, AND AGENTS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

THE CONTRACTOR SHALL BE RESPONSIBLE TO REPORT DISCREPANCIES IN PLANS AND/OR FIELD CONDITIONS IMMEDIATELY TO THE DESIGN ENGINEER FOR RESOLUTION PRIOR TO CONSTRUCTION, AND SHALL BE RESPONSIBLE FOR DISCREPANCIES NOT SO REPORTED AND RESOLVED.

DIGALERT

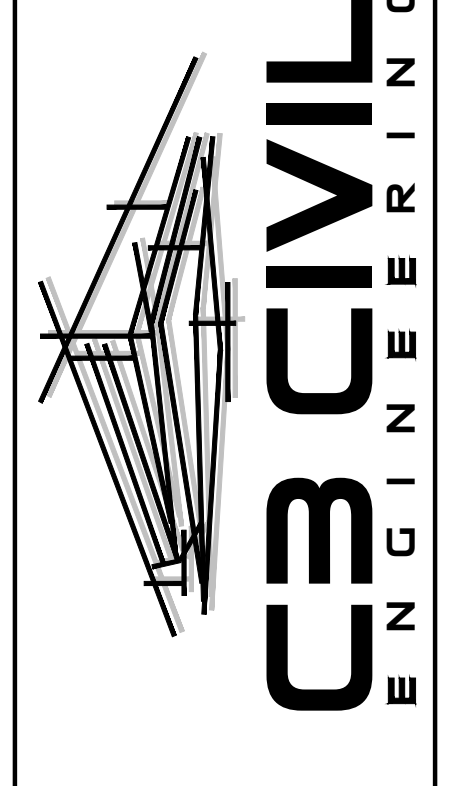
CALL BEFORE YOU DIG
1-800-227-2600
AT LEAST
2 WORKING DAY
NOTICE REQUIRED



REVISION RECORD	
#	DESCRIPTION

FRENCH HOTEL
31861 CAMINO CAPISTRANO
SAN JUAN CAPISTRANO, CA 92675

10870 W. FAIRVIEW DR
STE 102-1187
BOISE, ID 83713
(208) 918-0928
thomas@c3civileng.com
www.c3civileng.com

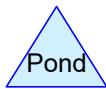
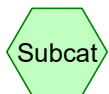
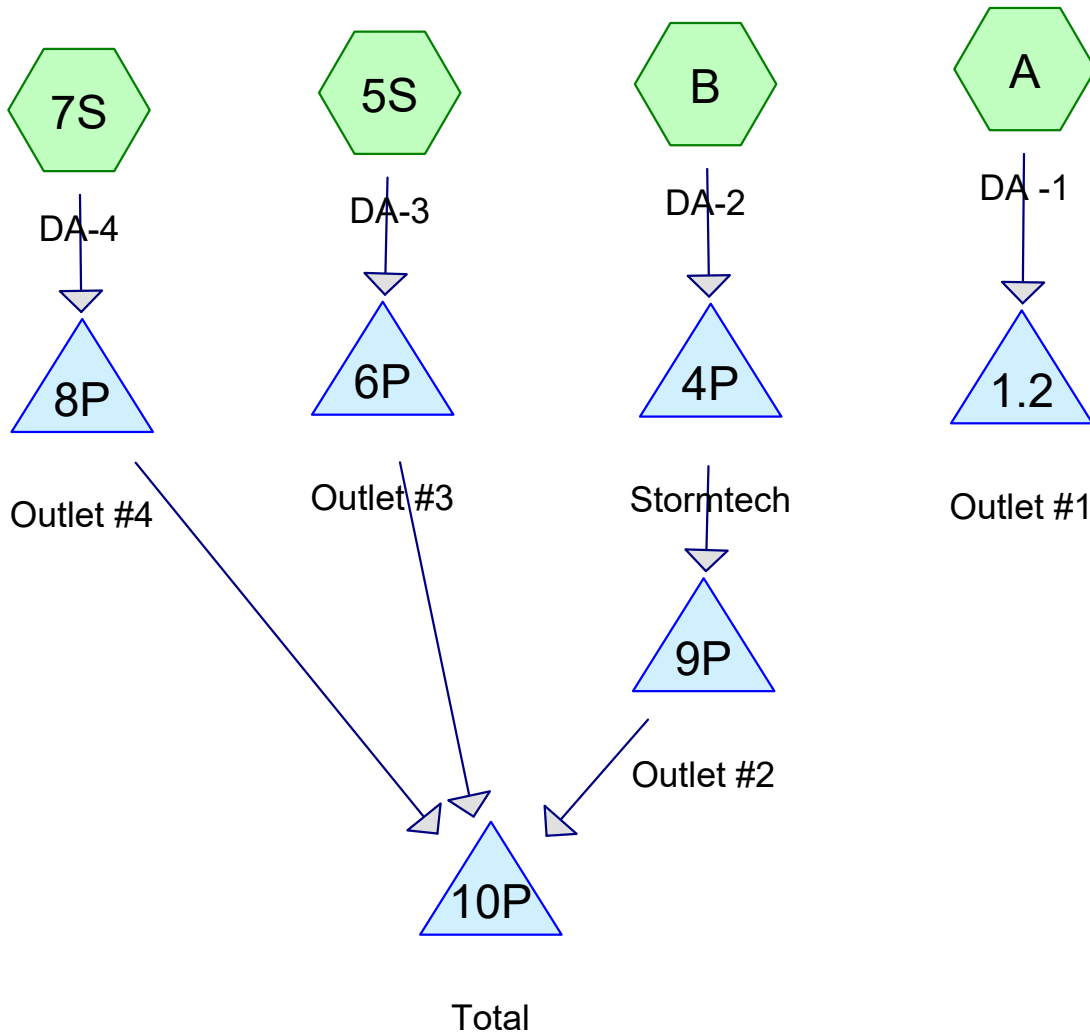


PROFESSIONAL SEAL

DATE: 10/09/2025
C3 JOB NO: 24-044
DRAWN BY: NM
CHECKED BY: TH

SHEET TITLE
PROPOSED DRAINAGE MAP

SHEET NUMBER
8 of 9



24044-Drainage Calcs (PR)hcp

Prepared by C3 Civil Engineering

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24044 - Hydro CAD- Proposed Drainage Study-
OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

Printed 7/7/2025

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment5S: DA-3	Runoff Area=8,696 sf 50.00% Impervious Runoff Depth=2.72" Tc=0.0 min CN=80 Runoff=0.59 cfs 1,970 cf
Subcatchment7S: DA-4	Runoff Area=3,414 sf 0.00% Impervious Runoff Depth=1.25" Tc=0.0 min CN=61 Runoff=0.09 cfs 356 cf
SubcatchmentA: DA -1	Runoff Area=2,045 sf 100.00% Impervious Runoff Depth=4.56" Tc=5.0 min CN=98 Runoff=0.18 cfs 778 cf
SubcatchmentB: DA-2	Runoff Area=58,672 sf 85.76% Impervious Runoff Depth=4.00" Tc=5.0 min CN=93 Runoff=4.77 cfs 19,565 cf
Pond 1.2: Outlet #1	Inflow=0.18 cfs 778 cf Primary=0.18 cfs 778 cf
Pond 4P: Stormtech	Peak Elev=95.21' Storage=15,836 cf Inflow=4.77 cfs 19,565 cf Outflow=0.08 cfs 5,365 cf
Pond 6P: Outlet #3	Peak Elev=95.23' Storage=1,101 cf Inflow=0.59 cfs 1,970 cf Outflow=0.02 cfs 1,292 cf
Pond 8P: Outlet #4	Inflow=0.09 cfs 356 cf Primary=0.09 cfs 356 cf
Pond 9P: Outlet #2	Inflow=0.00 cfs 0 cf Primary=0.00 cfs 0 cf
Pond 10P: Total	Inflow=0.09 cfs 356 cf Primary=0.09 cfs 356 cf

Total Runoff Area = 72,827 sf Runoff Volume = 22,669 cf Average Runoff Depth = 3.74"
22.13% Pervious = 16,117 sf 77.87% Impervious = 56,710 sf

24044-Drainage Calcs (PR)hcp

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24044 - Hydro CAD- Proposed Drainage Study-

OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Summary for Subcatchment 5S: DA-3

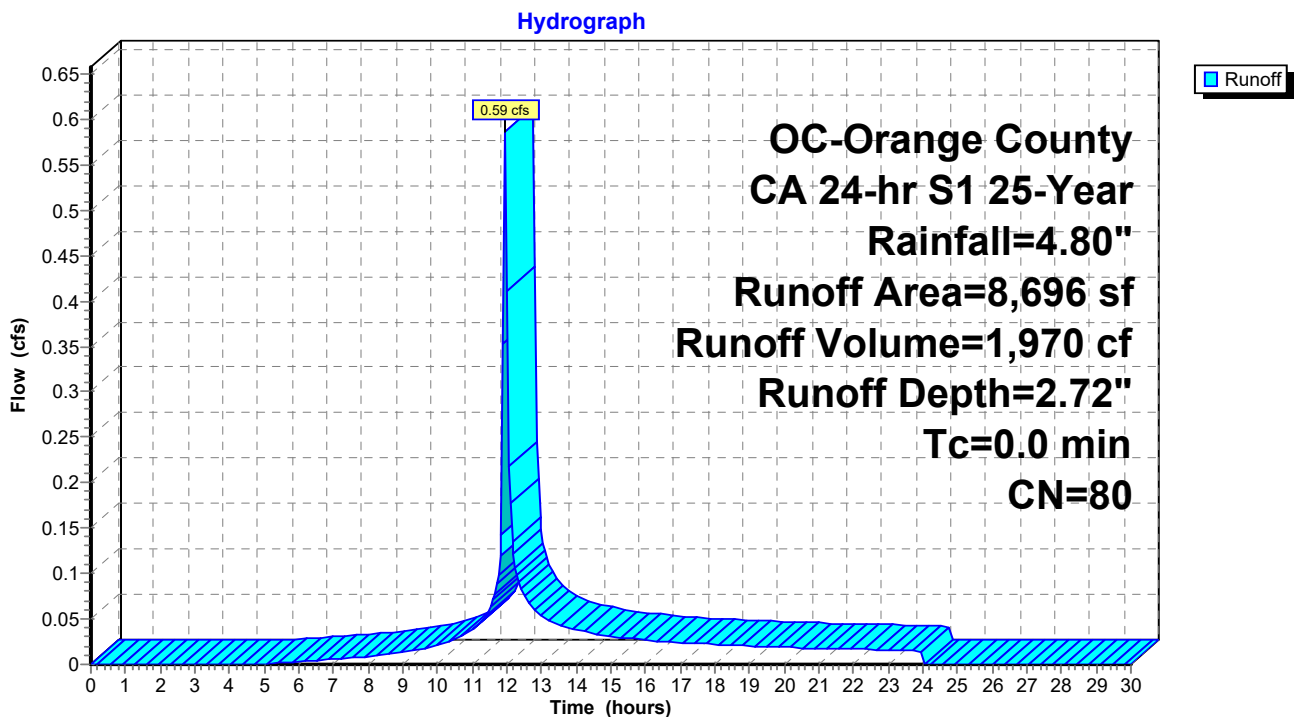
[46] Hint: $T_c=0$ (Instant runoff peak depends on dt)

Runoff = 0.59 cfs @ 11.95 hrs, Volume= 1,970 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

Area (sf)	CN	Description
4,348	98	Unconnected pavement, HSG B
4,348	61	>75% Grass cover, Good, HSG B
8,696	80	Weighted Average
4,348		50.00% Pervious Area
4,348		50.00% Impervious Area
4,348		100.00% Unconnected

Subcatchment 5S: DA-3



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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Hydrograph for Subcatchment 5S: DA-3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	4.80	2.72	0.00
0.50	0.04	0.00	0.00	26.00	4.80	2.72	0.00
1.00	0.09	0.00	0.00	26.50	4.80	2.72	0.00
1.50	0.14	0.00	0.00	27.00	4.80	2.72	0.00
2.00	0.19	0.00	0.00	27.50	4.80	2.72	0.00
2.50	0.24	0.00	0.00	28.00	4.80	2.72	0.00
3.00	0.29	0.00	0.00	28.50	4.80	2.72	0.00
3.50	0.34	0.00	0.00	29.00	4.80	2.72	0.00
4.00	0.39	0.00	0.00	29.50	4.80	2.72	0.00
4.50	0.45	0.00	0.00	30.00	4.80	2.72	0.00
5.00	0.51	0.00	0.00				
5.50	0.57	0.00	0.00				
6.00	0.63	0.01	0.00				
6.50	0.70	0.01	0.00				
7.00	0.77	0.03	0.01				
7.50	0.85	0.04	0.01				
8.00	0.92	0.06	0.01				
8.50	1.01	0.09	0.01				
9.00	1.10	0.12	0.01				
9.50	1.20	0.15	0.02				
10.00	1.32	0.20	0.02				
10.50	1.45	0.26	0.03				
11.00	1.61	0.34	0.04				
11.50	1.82	0.46	0.06				
12.00	2.57	0.94	0.41				
12.50	3.00	1.25	0.08				
13.00	3.21	1.41	0.05				
13.50	3.36	1.53	0.04				
14.00	3.49	1.63	0.04				
14.50	3.60	1.72	0.03				
15.00	3.70	1.80	0.03				
15.50	3.80	1.87	0.03				
16.00	3.88	1.94	0.03				
16.50	3.96	2.01	0.03				
17.00	4.03	2.07	0.02				
17.50	4.10	2.13	0.02				
18.00	4.17	2.18	0.02				
18.50	4.23	2.23	0.02				
19.00	4.29	2.29	0.02				
19.50	4.35	2.34	0.02				
20.00	4.41	2.38	0.02				
20.50	4.46	2.43	0.02				
21.00	4.51	2.47	0.02				
21.50	4.57	2.52	0.02				
22.00	4.61	2.56	0.02				
22.50	4.66	2.60	0.02				
23.00	4.71	2.64	0.02				
23.50	4.76	2.68	0.02				
24.00	4.80	2.72	0.01				
24.50	4.80	2.72	0.00				
25.00	4.80	2.72	0.00				

24044-Drainage Calcs (PR)hcp

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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Summary for Subcatchment 7S: DA-4

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

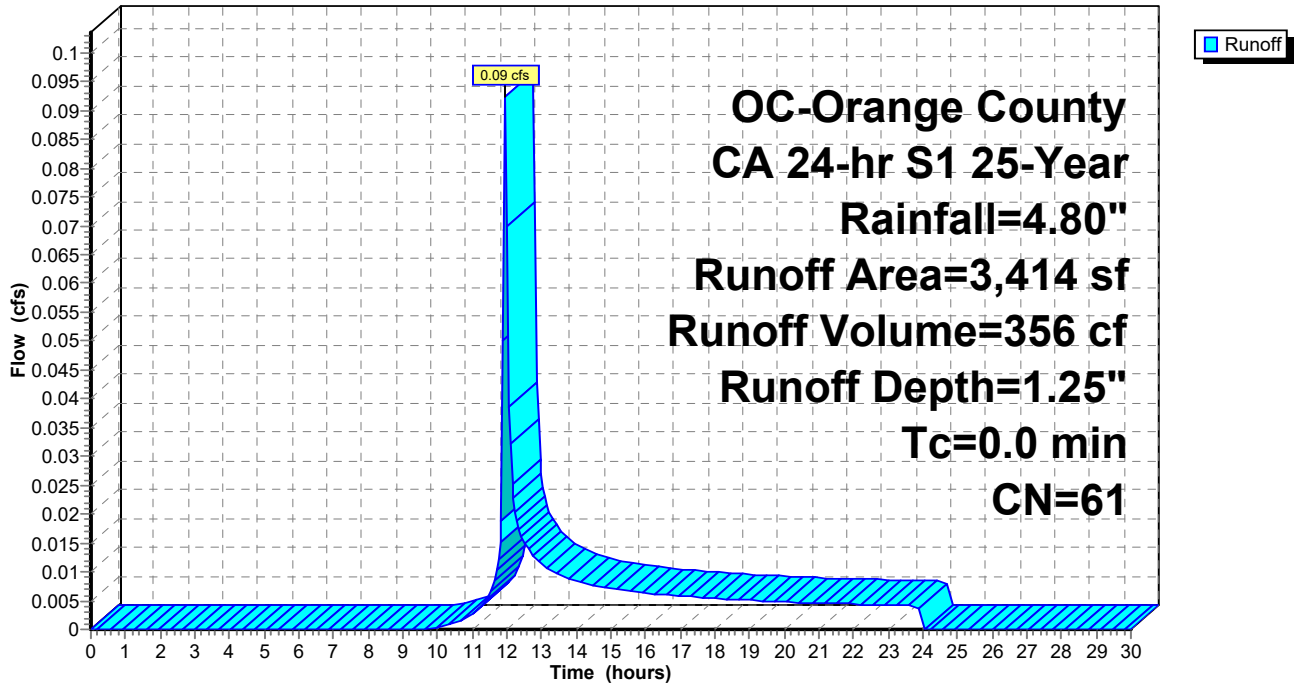
Runoff = 0.09 cfs @ 11.96 hrs, Volume= 356 cf, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

Area (sf)	CN	Description
3,414	61	>75% Grass cover, Good, HSG B
3,414		100.00% Pervious Area

Subcatchment 7S: DA-4

Hydrograph



24044-Drainage Calcs (PR)hcp

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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Hydrograph for Subcatchment 7S: DA-4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	4.80	1.25	0.00
0.50	0.04	0.00	0.00	26.00	4.80	1.25	0.00
1.00	0.09	0.00	0.00	26.50	4.80	1.25	0.00
1.50	0.14	0.00	0.00	27.00	4.80	1.25	0.00
2.00	0.19	0.00	0.00	27.50	4.80	1.25	0.00
2.50	0.24	0.00	0.00	28.00	4.80	1.25	0.00
3.00	0.29	0.00	0.00	28.50	4.80	1.25	0.00
3.50	0.34	0.00	0.00	29.00	4.80	1.25	0.00
4.00	0.39	0.00	0.00	29.50	4.80	1.25	0.00
4.50	0.45	0.00	0.00	30.00	4.80	1.25	0.00
5.00	0.51	0.00	0.00				
5.50	0.57	0.00	0.00				
6.00	0.63	0.00	0.00				
6.50	0.70	0.00	0.00				
7.00	0.77	0.00	0.00				
7.50	0.85	0.00	0.00				
8.00	0.92	0.00	0.00				
8.50	1.01	0.00	0.00				
9.00	1.10	0.00	0.00				
9.50	1.20	0.00	0.00				
10.00	1.32	0.00	0.00				
10.50	1.45	0.00	0.00				
11.00	1.61	0.02	0.00				
11.50	1.82	0.04	0.01				
12.00	2.57	0.22	0.07				
12.50	3.00	0.37	0.02				
13.00	3.21	0.45	0.01				
13.50	3.36	0.51	0.01				
14.00	3.49	0.57	0.01				
14.50	3.60	0.62	0.01				
15.00	3.70	0.67	0.01				
15.50	3.80	0.71	0.01				
16.00	3.88	0.75	0.01				
16.50	3.96	0.79	0.01				
17.00	4.03	0.83	0.01				
17.50	4.10	0.86	0.01				
18.00	4.17	0.90	0.01				
18.50	4.23	0.93	0.01				
19.00	4.29	0.97	0.01				
19.50	4.35	1.00	0.00				
20.00	4.41	1.03	0.00				
20.50	4.46	1.06	0.00				
21.00	4.51	1.09	0.00				
21.50	4.57	1.12	0.00				
22.00	4.61	1.14	0.00				
22.50	4.66	1.17	0.00				
23.00	4.71	1.20	0.00				
23.50	4.76	1.22	0.00				
24.00	4.80	1.25	0.00				
24.50	4.80	1.25	0.00				
25.00	4.80	1.25	0.00				

24044-Drainage Calcs (PR)hcp

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 OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Summary for Subcatchment A: DA -1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.18 cfs @ 12.02 hrs, Volume= 778 cf, Depth= 4.56"

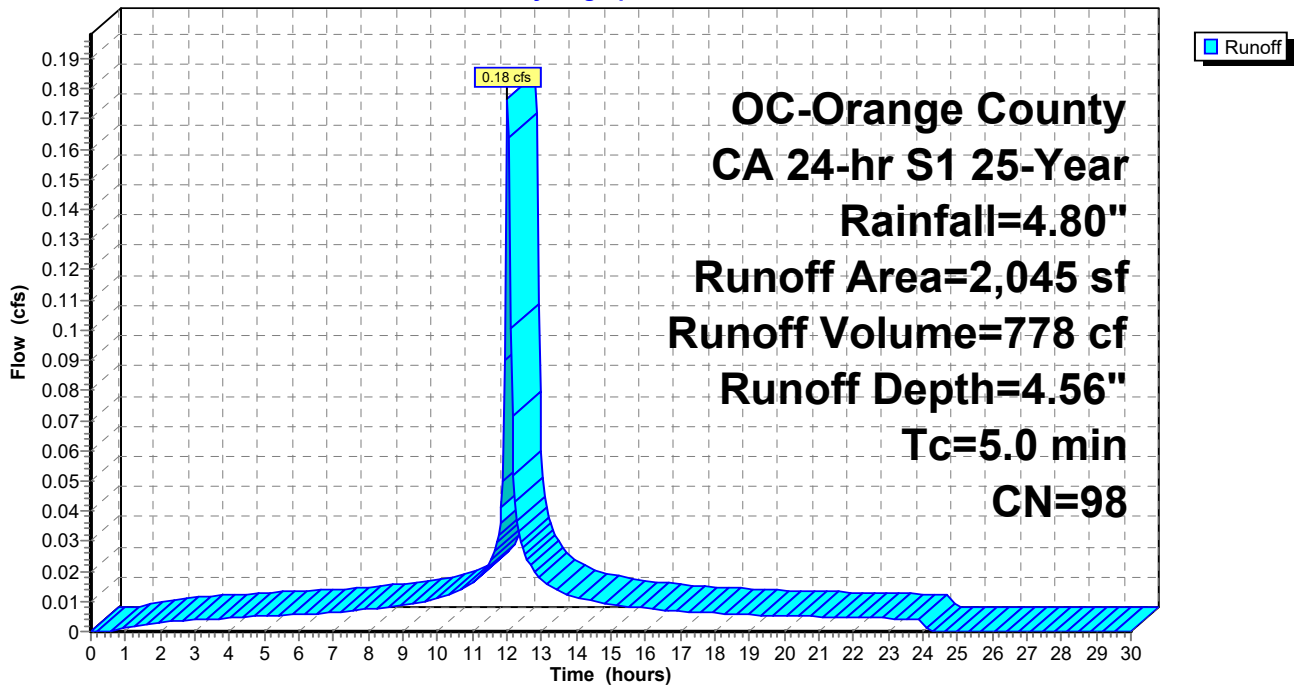
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

Area (sf)	CN	Description
2,045	98	Paved parking, HSG B
2,045		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Entire Site

Subcatchment A: DA -1

Hydrograph



24044-Drainage Calcs (PR)hcp

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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Hydrograph for Subcatchment A: DA -1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	4.80	4.56	0.00
0.50	0.04	0.00	0.00	26.00	4.80	4.56	0.00
1.00	0.09	0.01	0.00	26.50	4.80	4.56	0.00
1.50	0.14	0.03	0.00	27.00	4.80	4.56	0.00
2.00	0.19	0.06	0.00	27.50	4.80	4.56	0.00
2.50	0.24	0.10	0.00	28.00	4.80	4.56	0.00
3.00	0.29	0.13	0.00	28.50	4.80	4.56	0.00
3.50	0.34	0.18	0.00	29.00	4.80	4.56	0.00
4.00	0.39	0.22	0.00	29.50	4.80	4.56	0.00
4.50	0.45	0.27	0.00	30.00	4.80	4.56	0.00
5.00	0.51	0.33	0.01				
5.50	0.57	0.38	0.01				
6.00	0.63	0.44	0.01				
6.50	0.70	0.50	0.01				
7.00	0.77	0.57	0.01				
7.50	0.85	0.64	0.01				
8.00	0.92	0.72	0.01				
8.50	1.01	0.80	0.01				
9.00	1.10	0.89	0.01				
9.50	1.20	0.99	0.01				
10.00	1.32	1.10	0.01				
10.50	1.45	1.23	0.01				
11.00	1.61	1.38	0.02				
11.50	1.82	1.60	0.02				
12.00	2.57	2.34	0.17				
12.50	3.00	2.77	0.03				
13.00	3.21	2.98	0.02				
13.50	3.36	3.13	0.01				
14.00	3.49	3.26	0.01				
14.50	3.60	3.37	0.01				
15.00	3.70	3.47	0.01				
15.50	3.80	3.56	0.01				
16.00	3.88	3.64	0.01				
16.50	3.96	3.72	0.01				
17.00	4.03	3.80	0.01				
17.50	4.10	3.87	0.01				
18.00	4.17	3.93	0.01				
18.50	4.23	4.00	0.01				
19.00	4.29	4.06	0.01				
19.50	4.35	4.12	0.01				
20.00	4.41	4.17	0.01				
20.50	4.46	4.23	0.01				
21.00	4.51	4.28	0.00				
21.50	4.57	4.33	0.00				
22.00	4.61	4.38	0.00				
22.50	4.66	4.43	0.00				
23.00	4.71	4.47	0.00				
23.50	4.76	4.52	0.00				
24.00	4.80	4.56	0.00				
24.50	4.80	4.56	0.00				
25.00	4.80	4.56	0.00				

24044-Drainage Calcs (PR)hcp

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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Summary for Subcatchment B: DA-2

[49] Hint: $T_c < 2dt$ may require smaller dt

Runoff = 4.77 cfs @ 12.02 hrs, Volume= 19,565 cf, Depth= 4.00"

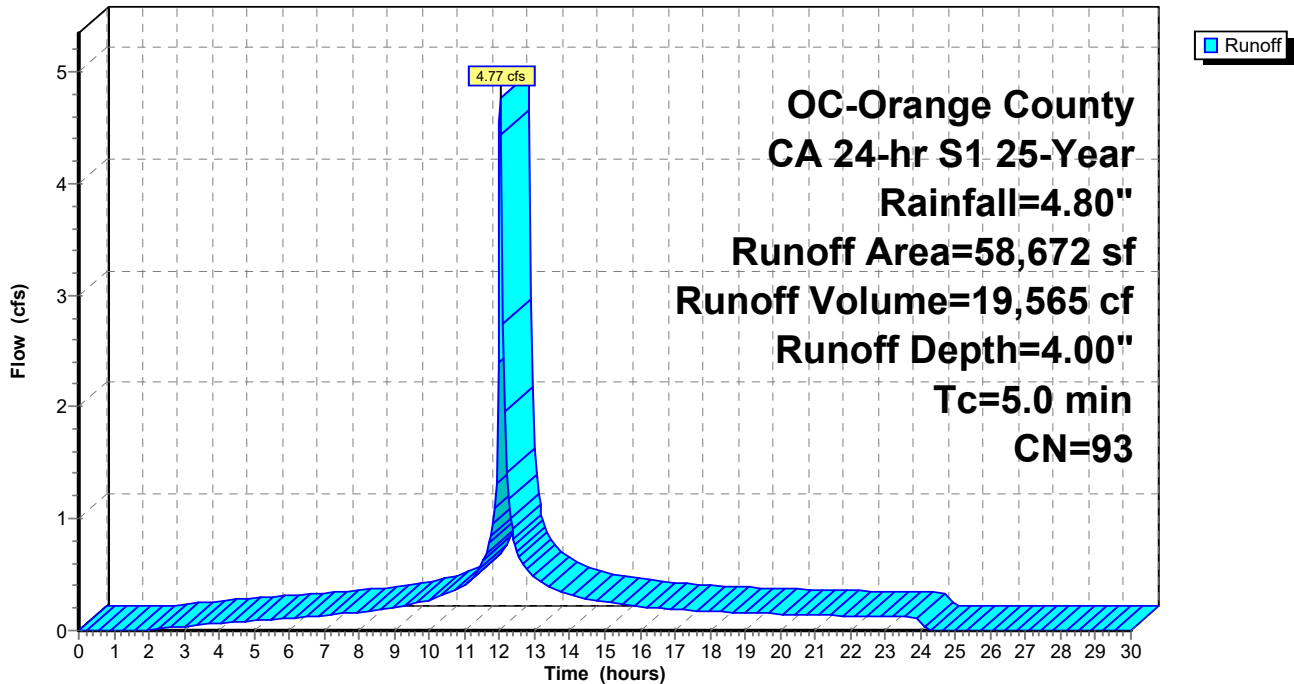
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, $dt=0.05$ hrs
OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

Area (sf)	CN	Description
50,317	98	Unconnected pavement, HSG A
8,355	61	>75% Grass cover, Good, HSG B
58,672	93	Weighted Average
8,355		14.24% Pervious Area
50,317		85.76% Impervious Area
50,317		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment B: DA-2

Hydrograph



24044-Drainage Calcs (PR)hcp

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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Hydrograph for Subcatchment B: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	4.80	4.00	0.00
0.50	0.04	0.00	0.00	26.00	4.80	4.00	0.00
1.00	0.09	0.00	0.00	26.50	4.80	4.00	0.00
1.50	0.14	0.00	0.00	27.00	4.80	4.00	0.00
2.00	0.19	0.00	0.01	27.50	4.80	4.00	0.00
2.50	0.24	0.01	0.02	28.00	4.80	4.00	0.00
3.00	0.29	0.02	0.04	28.50	4.80	4.00	0.00
3.50	0.34	0.04	0.05	29.00	4.80	4.00	0.00
4.00	0.39	0.06	0.06	29.50	4.80	4.00	0.00
4.50	0.45	0.09	0.07	30.00	4.80	4.00	0.00
5.00	0.51	0.12	0.09				
5.50	0.57	0.15	0.10				
6.00	0.63	0.19	0.11				
6.50	0.70	0.23	0.12				
7.00	0.77	0.28	0.14				
7.50	0.85	0.33	0.15				
8.00	0.92	0.39	0.17				
8.50	1.01	0.46	0.18				
9.00	1.10	0.53	0.21				
9.50	1.20	0.61	0.23				
10.00	1.32	0.71	0.27				
10.50	1.45	0.82	0.32				
11.00	1.61	0.96	0.41				
11.50	1.82	1.15	0.61				
12.00	2.57	1.85	4.55				
12.50	3.00	2.25	0.71				
13.00	3.21	2.45	0.48				
13.50	3.36	2.60	0.38				
14.00	3.49	2.73	0.32				
14.50	3.60	2.84	0.28				
15.00	3.70	2.93	0.25				
15.50	3.80	3.02	0.23				
16.00	3.88	3.10	0.22				
16.50	3.96	3.18	0.20				
17.00	4.03	3.25	0.19				
17.50	4.10	3.32	0.18				
18.00	4.17	3.38	0.17				
18.50	4.23	3.45	0.17				
19.00	4.29	3.51	0.16				
19.50	4.35	3.56	0.15				
20.00	4.41	3.62	0.15				
20.50	4.46	3.67	0.14				
21.00	4.51	3.72	0.14				
21.50	4.57	3.77	0.13				
22.00	4.61	3.82	0.13				
22.50	4.66	3.87	0.13				
23.00	4.71	3.91	0.12				
23.50	4.76	3.96	0.12				
24.00	4.80	4.00	0.12				
24.50	4.80	4.00	0.00				
25.00	4.80	4.00	0.00				

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Summary for Pond 1.2: Outlet #1

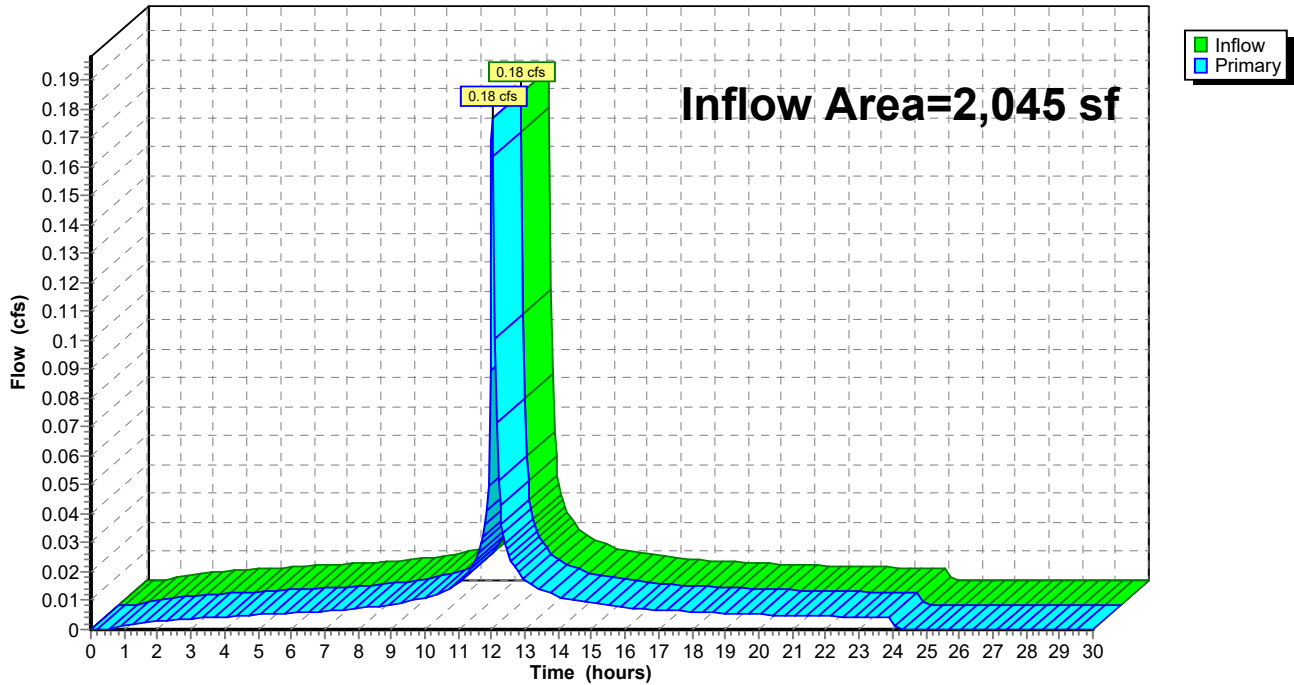
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2,045 sf, 100.00% Impervious, Inflow Depth = 4.56" for 25-Year event
Inflow = 0.18 cfs @ 12.02 hrs, Volume= 778 cf
Primary = 0.18 cfs @ 12.02 hrs, Volume= 778 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 1.2: Outlet #1

Hydrograph



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Hydrograph for Pond 1.2: Outlet #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.01		0.01				
5.50	0.01		0.01				
6.00	0.01		0.01				
6.50	0.01		0.01				
7.00	0.01		0.01				
7.50	0.01		0.01				
8.00	0.01		0.01				
8.50	0.01		0.01				
9.00	0.01		0.01				
9.50	0.01		0.01				
10.00	0.01		0.01				
10.50	0.01		0.01				
11.00	0.02		0.02				
11.50	0.02		0.02				
12.00	0.17		0.17				
12.50	0.03		0.03				
13.00	0.02		0.02				
13.50	0.01		0.01				
14.00	0.01		0.01				
14.50	0.01		0.01				
15.00	0.01		0.01				
15.50	0.01		0.01				
16.00	0.01		0.01				
16.50	0.01		0.01				
17.00	0.01		0.01				
17.50	0.01		0.01				
18.00	0.01		0.01				
18.50	0.01		0.01				
19.00	0.01		0.01				
19.50	0.01		0.01				
20.00	0.01		0.01				
20.50	0.01		0.01				
21.00	0.00		0.00				
21.50	0.00		0.00				
22.00	0.00		0.00				
22.50	0.00		0.00				
23.00	0.00		0.00				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

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Summary for Pond 4P: Stormtech

Inflow Area = 58,672 sf, 85.76% Impervious, Inflow Depth = 4.00" for 25-Year event
 Inflow = 4.77 cfs @ 12.02 hrs, Volume= 19,565 cf
 Outflow = 0.08 cfs @ 24.05 hrs, Volume= 5,365 cf, Atten= 98%, Lag= 721.7 min
 Discarded = 0.08 cfs @ 24.05 hrs, Volume= 5,365 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.21' @ 24.05 hrs Surf.Area= 6,041 sf Storage= 15,836 cf

Plug-Flow detention time= 686.4 min calculated for 5,357 cf (27% of inflow)
 Center-of-Mass det. time= 409.0 min (1,202.9 - 793.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.00'	2,567 cf	15.58'W x 84.57'L x 6.75'H Field A 8,896 cf Overall - 2,479 cf Embedded = 6,417 cf x 40.0% Voids
#2A	92.00'	2,479 cf	ADS_StormTech MC-3500 d +Cap x 22 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 22 Chambers in 2 Rows Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
#3B	91.00'	3,660 cf	24.25'W x 117.54'L x 4.50'H Field B 12,826 cf Overall - 3,675 cf Embedded = 9,151 cf x 40.0% Voids
#4B	92.00'	3,675 cf	ADS_StormTech SC-740 +Cap x 80 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 80 Chambers in 5 Rows
#5C	91.00'	3,235 cf	29.92'W x 55.89'L x 6.75'H Field C 11,286 cf Overall - 3,198 cf Embedded = 8,088 cf x 40.0% Voids
#6C	92.00'	3,198 cf	ADS_StormTech MC-3500 d +Cap x 28 Inside #5 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 28 Chambers in 4 Rows Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf
#7D	91.00'	430 cf	15.58'W x 12.87'L x 6.75'H Field D 1,354 cf Overall - 280 cf Embedded = 1,074 cf x 40.0% Voids
#8D	92.00'	280 cf	ADS_StormTech MC-3500 d +Cap x 2 Inside #7 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Chambers in 2 Rows Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		19,523 cf	Total Available Storage

Storage Group A created with Chamber Wizard
 Storage Group B created with Chamber Wizard
 Storage Group C created with Chamber Wizard
 Storage Group D created with Chamber Wizard

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Device	Routing	Invert	Outlet Devices
#1	Discarded	91.00'	1.440 in/hr Exfiltration over Wetted area from 91.00' - 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 6,041 sf
#2	Discarded	93.00'	0.480 in/hr Exfiltration over Wetted area above 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 7,466 sf

Discarded OutFlow Max=0.08 cfs @ 24.05 hrs HW=95.21' (Free Discharge)

1=Exfiltration (Controls 0.06 cfs)

2=Exfiltration (Controls 0.02 cfs)

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Pond 4P: Stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 12.0" Side Stone x 2 = 15.58' Base Width

12.0" Stone Base + 45.0" Chamber Height + 24.0" Stone Cover = 6.75' Field Height

22 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 2,478.5 cf Chamber Storage

8,895.7 cf Field - 2,478.5 cf Chambers = 6,417.2 cf Stone x 40.0% Voids = 2,566.9 cf Stone Storage

Chamber Storage + Stone Storage = 5,045.4 cf = 0.116 af

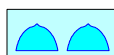
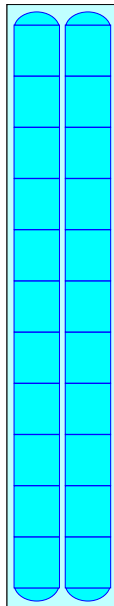
Overall Storage Efficiency = 56.7%

Overall System Size = 84.57' x 15.58' x 6.75'

22 Chambers

329.5 cy Field

237.7 cy Stone



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Pond 4P: Stormtech - Chamber Wizard Field B

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

16 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 115.54' Row Length +12.0" End Stone x 2 = 117.54' Base Length

5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 6.0" Side Stone x 2 = 24.25' Base Width

12.0" Stone Base + 30.0" Chamber Height + 12.0" Stone Cover = 4.50' Field Height

80 Chambers x 45.9 cf = 3,675.2 cf Chamber Storage

12,826.2 cf Field - 3,675.2 cf Chambers = 9,151.0 cf Stone x 40.0% Voids = 3,660.4 cf Stone Storage

Chamber Storage + Stone Storage = 7,335.6 cf = 0.168 af

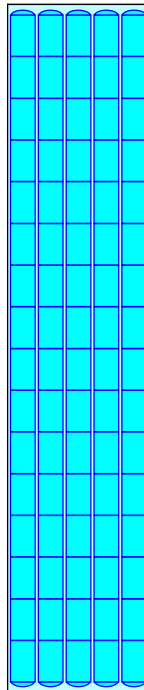
Overall Storage Efficiency = 57.2%

Overall System Size = 117.54' x 24.25' x 4.50'

80 Chambers

475.0 cy Field

338.9 cy Stone



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Pond 4P: Stormtech - Chamber Wizard Field C

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

7 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 53.89' Row Length +12.0" End Stone x 2 = 55.89' Base Length

4 Rows x 77.0" Wide + 9.0" Spacing x 3 + 12.0" Side Stone x 2 = 29.92' Base Width

12.0" Stone Base + 45.0" Chamber Height + 24.0" Stone Cover = 6.75' Field Height

28 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 4 Rows = 3,197.9 cf Chamber Storage

11,286.3 cf Field - 3,197.9 cf Chambers = 8,088.4 cf Stone x 40.0% Voids = 3,235.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,433.2 cf = 0.148 af

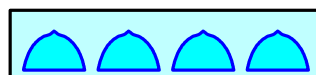
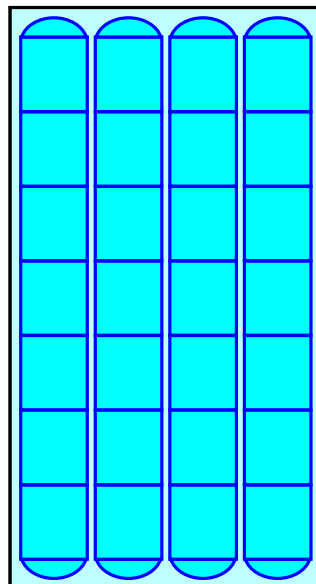
Overall Storage Efficiency = 57.0%

Overall System Size = 55.89' x 29.92' x 6.75'

28 Chambers

418.0 cy Field

299.6 cy Stone



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Pond 4P: Stormtech - Chamber Wizard Field D

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

1 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 10.87' Row Length +12.0" End Stone x 2 = 12.87' Base Length

2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 12.0" Side Stone x 2 = 15.58' Base Width

12.0" Stone Base + 45.0" Chamber Height + 24.0" Stone Cover = 6.75' Field Height

2 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 279.5 cf Chamber Storage

1,353.8 cf Field - 279.5 cf Chambers = 1,074.3 cf Stone x 40.0% Voids = 429.7 cf Stone Storage

Chamber Storage + Stone Storage = 709.2 cf = 0.016 af

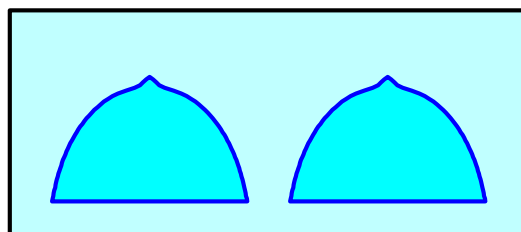
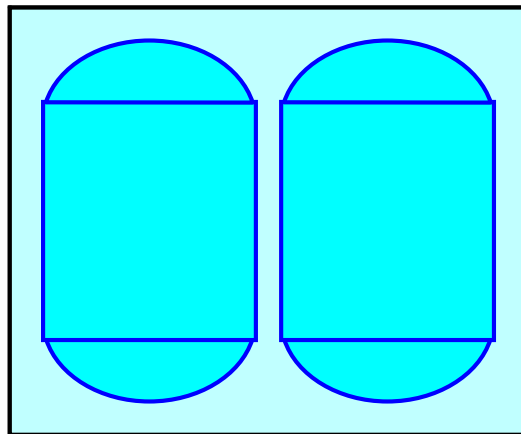
Overall Storage Efficiency = 52.4%

Overall System Size = 12.87' x 15.58' x 6.75'

2 Chambers

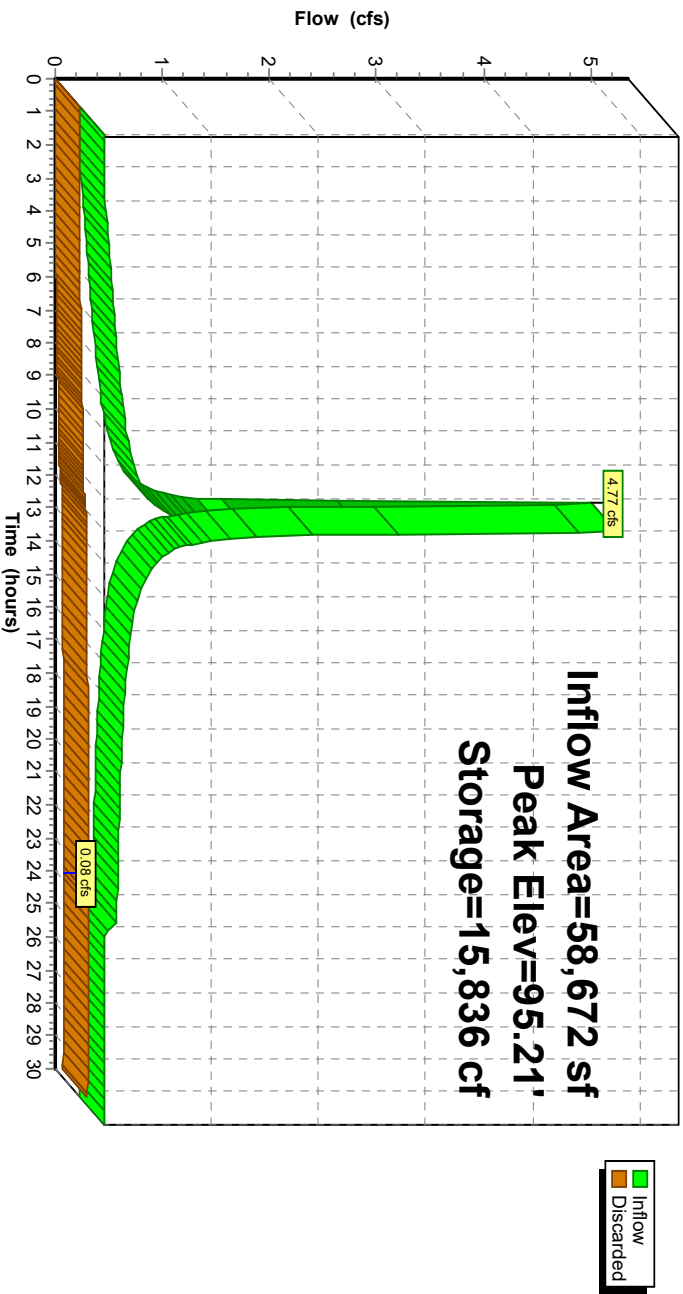
50.1 cy Field

39.8 cy Stone



Pond 4P: Stormtech

Hydrograph



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Hydrograph for Pond 4P: Stormtech

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	91.00	0.00
1.00	0.00	0	91.00	0.00
2.00	0.01	5	91.00	0.00
3.00	0.04	90	91.04	0.00
4.00	0.06	266	91.11	0.00
5.00	0.09	520	91.22	0.01
6.00	0.11	848	91.35	0.01
7.00	0.14	1,249	91.52	0.01
8.00	0.17	1,734	91.72	0.02
9.00	0.21	2,325	91.96	0.02
10.00	0.27	3,079	92.13	0.03
11.00	0.41	4,155	92.35	0.03
12.00	4.55	7,062	92.94	0.05
13.00	0.48	11,093	93.83	0.06
14.00	0.32	12,243	94.11	0.07
15.00	0.25	13,022	94.32	0.07
16.00	0.22	13,615	94.50	0.07
17.00	0.19	14,088	94.64	0.07
18.00	0.17	14,478	94.76	0.07
19.00	0.16	14,803	94.87	0.08
20.00	0.15	15,079	94.95	0.08
21.00	0.14	15,314	95.03	0.08
22.00	0.13	15,514	95.10	0.08
23.00	0.12	15,686	95.16	0.08
24.00	0.12	15,832	95.21	0.08
25.00	0.00	15,578	95.12	0.08
26.00	0.00	15,295	95.02	0.08
27.00	0.00	15,016	94.93	0.08
28.00	0.00	14,742	94.85	0.08
29.00	0.00	14,472	94.76	0.07
30.00	0.00	14,207	94.68	0.07

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Summary for Pond 6P: Outlet #3

Inflow Area = 8,696 sf, 50.00% Impervious, Inflow Depth = 2.72" for 25-Year event
 Inflow = 0.59 cfs @ 11.95 hrs, Volume= 1,970 cf
 Outflow = 0.02 cfs @ 19.06 hrs, Volume= 1,292 cf, Atten= 97%, Lag= 426.3 min
 Discarded = 0.02 cfs @ 19.06 hrs, Volume= 1,292 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 95.23' @ 19.06 hrs Surf.Area= 490 sf Storage= 1,101 cf

Plug-Flow detention time= 500.6 min calculated for 1,290 cf (65% of inflow)
 Center-of-Mass det. time= 356.2 min (1,215.2 - 859.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.00'	545 cf	6.25'W x 39.22'L x 6.50'H Field E 1,593 cf Overall - 230 cf Embedded = 1,363 cf x 40.0% Voids
#2A	93.00'	230 cf	ADS_StormTech SC-740 +Cap x 5 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	91.00'	545 cf	6.25'W x 39.22'L x 6.50'H Field F 1,593 cf Overall - 230 cf Embedded = 1,363 cf x 40.0% Voids
#4B	93.00'	230 cf	ADS_StormTech SC-740 +Cap x 5 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		1,550 cf	Total Available Storage

Storage Group A created with Chamber Wizard
 Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.00'	1.440 in/hr Exfiltration over Wetted area from 91.00' - 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 490 sf
#2	Discarded	93.00'	0.430 in/hr Exfiltration over Wetted area above 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 854 sf

Discarded OutFlow Max=0.02 cfs @ 19.06 hrs HW=95.23' (Free Discharge)

- 1=Exfiltration (Controls 0.02 cfs)
- 2=Exfiltration (Controls 0.00 cfs)

Pond 6P: Outlet #3 - Chamber Wizard Field E

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

5 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 37.22' Row Length +12.0" End Stone x 2 = 39.22'
Base Length

1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width

24.0" Stone Base + 30.0" Chamber Height + 24.0" Stone Cover = 6.50' Field Height

5 Chambers x 45.9 cf = 229.7 cf Chamber Storage

1,593.2 cf Field - 229.7 cf Chambers = 1,363.5 cf Stone x 40.0% Voids = 545.4 cf Stone Storage

Chamber Storage + Stone Storage = 775.1 cf = 0.018 af

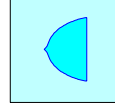
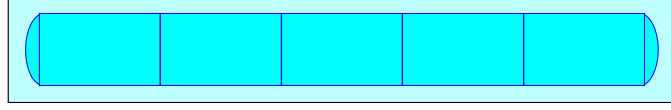
Overall Storage Efficiency = 48.7%

Overall System Size = 39.22' x 6.25' x 6.50'

5 Chambers

59.0 cy Field

50.5 cy Stone



Pond 6P: Outlet #3 - Chamber Wizard Field F

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

5 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 37.22' Row Length +12.0" End Stone x 2 = 39.22'
Base Length

1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width

24.0" Stone Base + 30.0" Chamber Height + 24.0" Stone Cover = 6.50' Field Height

5 Chambers x 45.9 cf = 229.7 cf Chamber Storage

1,593.2 cf Field - 229.7 cf Chambers = 1,363.5 cf Stone x 40.0% Voids = 545.4 cf Stone Storage

Chamber Storage + Stone Storage = 775.1 cf = 0.018 af

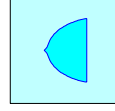
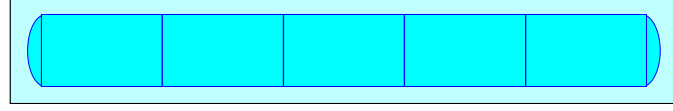
Overall Storage Efficiency = 48.7%

Overall System Size = 39.22' x 6.25' x 6.50'

5 Chambers

59.0 cy Field

50.5 cy Stone



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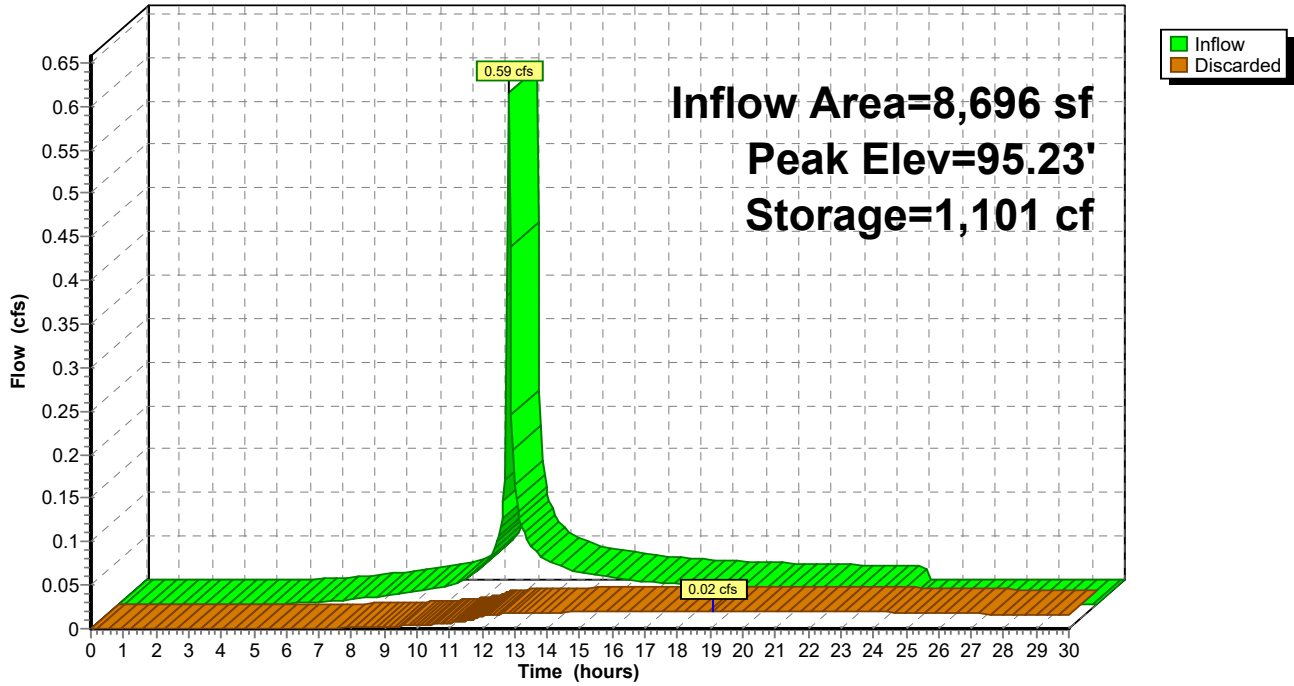
24044 - Hydro CAD- Proposed Drainage Study-
OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Pond 6P: Outlet #3

Hydrograph



24044-Drainage Calcs (PR)hcp

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Hydrograph for Pond 6P: Outlet #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	91.00	0.00
1.00	0.00	0	91.00	0.00
2.00	0.00	0	91.00	0.00
3.00	0.00	0	91.00	0.00
4.00	0.00	0	91.00	0.00
5.00	0.00	0	91.00	0.00
6.00	0.00	5	91.02	0.00
7.00	0.01	18	91.09	0.00
8.00	0.01	40	91.20	0.00
9.00	0.01	74	91.38	0.00
10.00	0.02	124	91.63	0.00
11.00	0.04	205	92.05	0.01
12.00	0.41	587	93.55	0.01
13.00	0.05	885	94.46	0.02
14.00	0.04	980	94.78	0.02
15.00	0.03	1,035	94.97	0.02
16.00	0.03	1,068	95.10	0.02
17.00	0.02	1,088	95.18	0.02
18.00	0.02	1,098	95.22	0.02
19.00	0.02	1,101	95.23	0.02
20.00	0.02	1,099	95.22	0.02
21.00	0.02	1,093	95.20	0.02
22.00	0.02	1,084	95.16	0.02
23.00	0.02	1,072	95.11	0.02
24.00	0.01	1,057	95.05	0.02
25.00	0.00	989	94.81	0.02
26.00	0.00	922	94.58	0.02
27.00	0.00	859	94.37	0.02
28.00	0.00	797	94.18	0.02
29.00	0.00	738	94.00	0.02
30.00	0.00	680	93.83	0.02

24044-Drainage Calcs (PR)hcp

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Summary for Pond 8P: Outlet #4

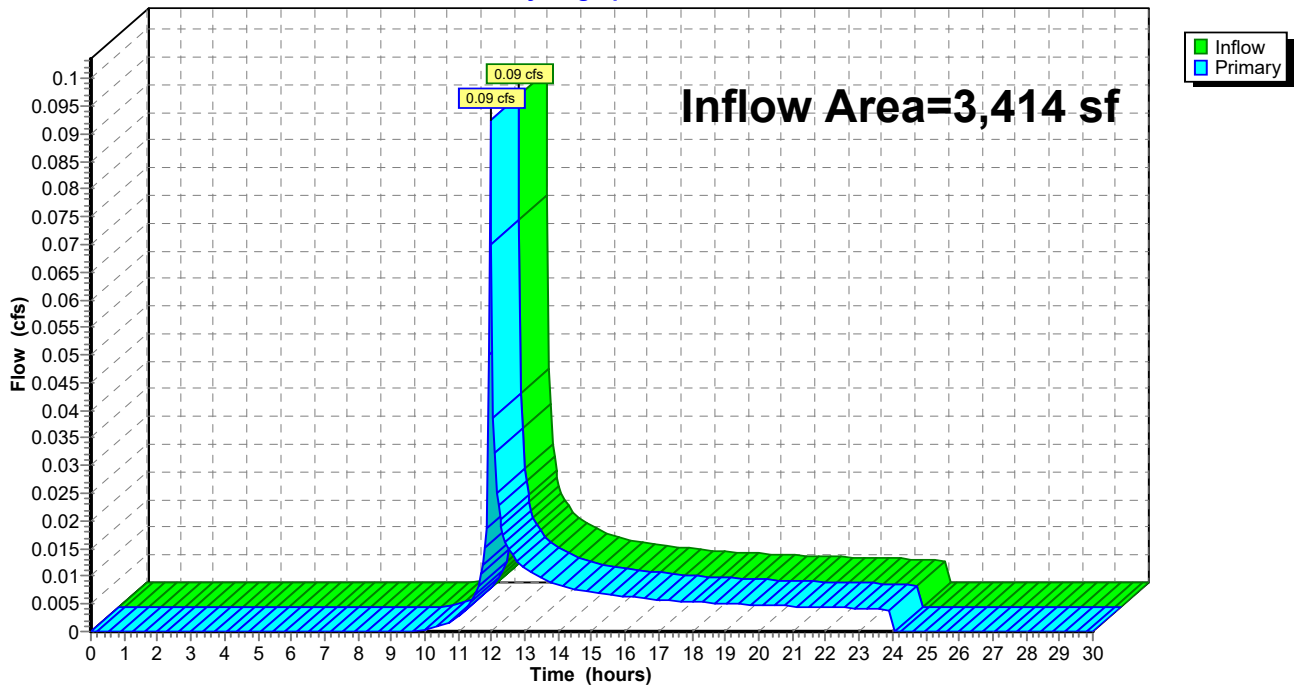
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3,414 sf, 0.00% Impervious, Inflow Depth = 1.25" for 25-Year event
Inflow = 0.09 cfs @ 11.96 hrs, Volume= 356 cf
Primary = 0.09 cfs @ 11.96 hrs, Volume= 356 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 8P: Outlet #4

Hydrograph



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Hydrograph for Pond 8P: Outlet #4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.00		0.00				
11.50	0.01		0.01				
12.00	0.07		0.07				
12.50	0.02		0.02				
13.00	0.01		0.01				
13.50	0.01		0.01				
14.00	0.01		0.01				
14.50	0.01		0.01				
15.00	0.01		0.01				
15.50	0.01		0.01				
16.00	0.01		0.01				
16.50	0.01		0.01				
17.00	0.01		0.01				
17.50	0.01		0.01				
18.00	0.01		0.01				
18.50	0.01		0.01				
19.00	0.01		0.01				
19.50	0.00		0.00				
20.00	0.00		0.00				
20.50	0.00		0.00				
21.00	0.00		0.00				
21.50	0.00		0.00				
22.00	0.00		0.00				
22.50	0.00		0.00				
23.00	0.00		0.00				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

Summary for Pond 9P: Outlet #2

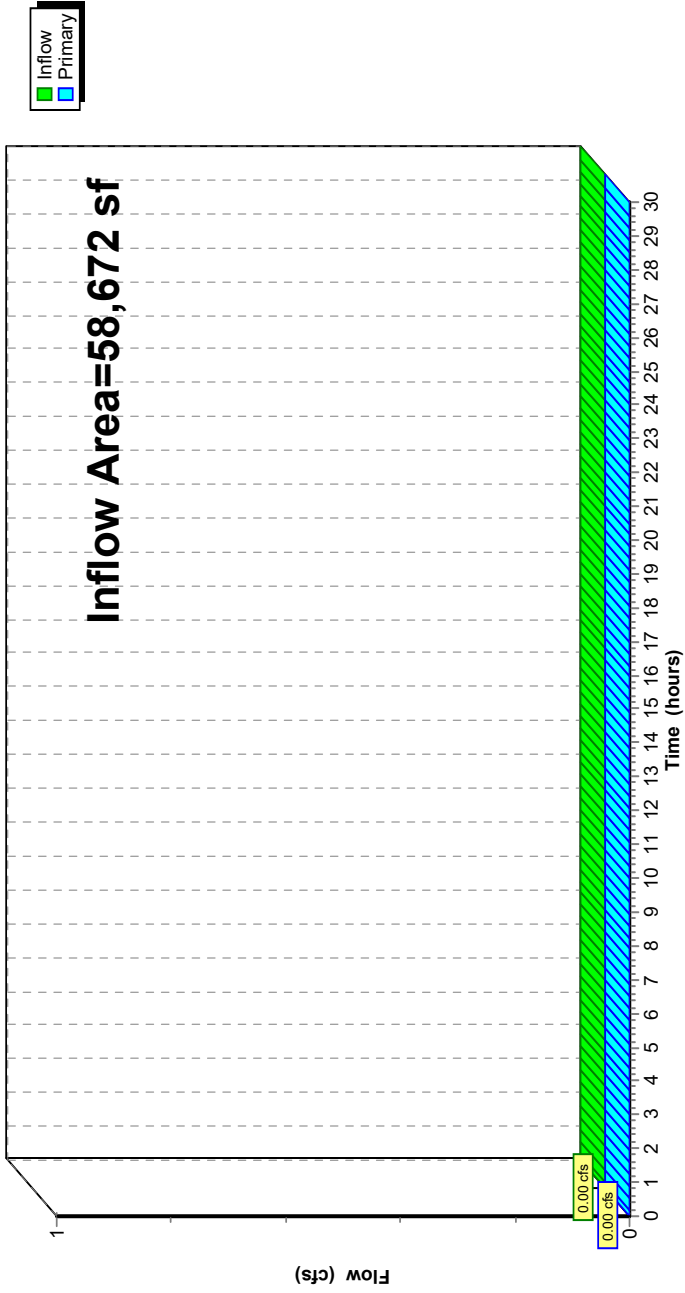
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 58,672 sf, 85.76% Impervious, Inflow Depth = 0.00" for 25-Year event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 9P: Outlet #2

Hydrograph



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Hydrograph for Pond 9P: Outlet #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.00		0.00				
11.50	0.00		0.00				
12.00	0.00		0.00				
12.50	0.00		0.00				
13.00	0.00		0.00				
13.50	0.00		0.00				
14.00	0.00		0.00				
14.50	0.00		0.00				
15.00	0.00		0.00				
15.50	0.00		0.00				
16.00	0.00		0.00				
16.50	0.00		0.00				
17.00	0.00		0.00				
17.50	0.00		0.00				
18.00	0.00		0.00				
18.50	0.00		0.00				
19.00	0.00		0.00				
19.50	0.00		0.00				
20.00	0.00		0.00				
20.50	0.00		0.00				
21.00	0.00		0.00				
21.50	0.00		0.00				
22.00	0.00		0.00				
22.50	0.00		0.00				
23.00	0.00		0.00				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

24044-Drainage Calcs (PR)hcp

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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Summary for Pond 10P: Total

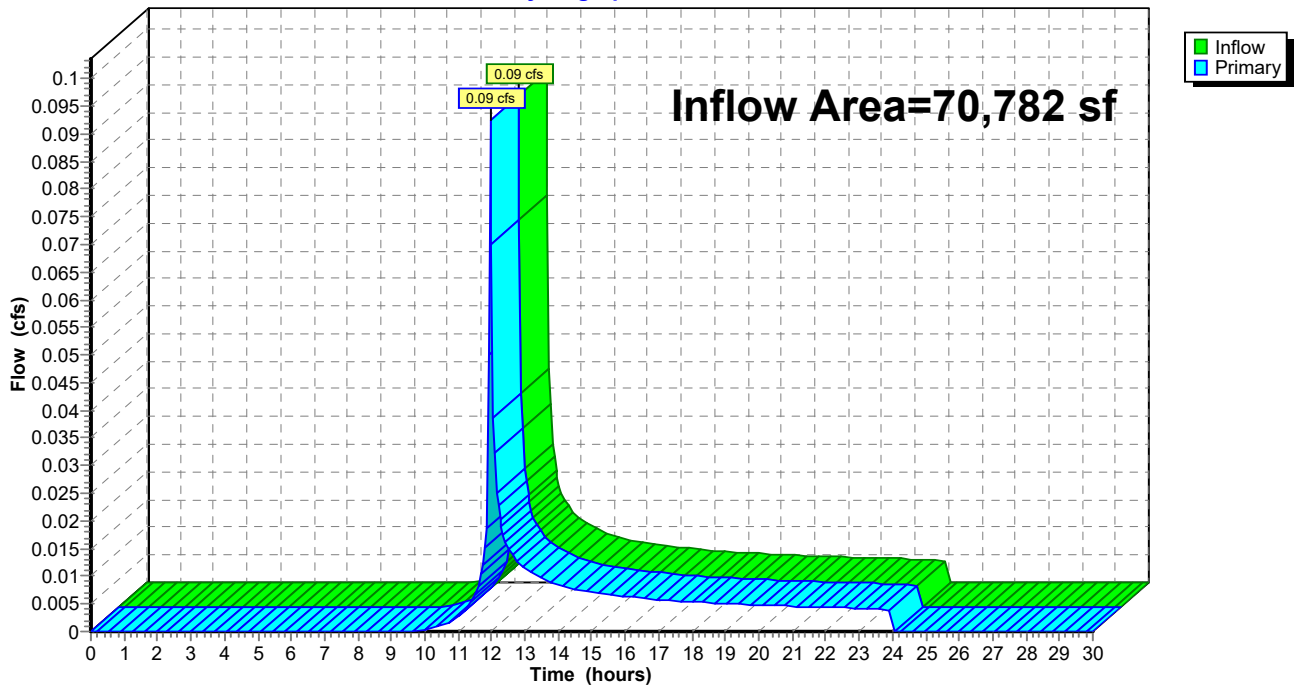
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,782 sf, 77.23% Impervious, Inflow Depth = 0.06" for 25-Year event
Inflow = 0.09 cfs @ 11.96 hrs, Volume= 356 cf
Primary = 0.09 cfs @ 11.96 hrs, Volume= 356 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 10P: Total

Hydrograph



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OC-Orange County, CA 24-hr S1 25-Year Rainfall=4.80"

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Hydrograph for Pond 10P: Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.00		0.00				
11.50	0.01		0.01				
12.00	0.07		0.07				
12.50	0.02		0.02				
13.00	0.01		0.01				
13.50	0.01		0.01				
14.00	0.01		0.01				
14.50	0.01		0.01				
15.00	0.01		0.01				
15.50	0.01		0.01				
16.00	0.01		0.01				
16.50	0.01		0.01				
17.00	0.01		0.01				
17.50	0.01		0.01				
18.00	0.01		0.01				
18.50	0.01		0.01				
19.00	0.01		0.01				
19.50	0.00		0.00				
20.00	0.00		0.00				
20.50	0.00		0.00				
21.00	0.00		0.00				
21.50	0.00		0.00				
22.00	0.00		0.00				
22.50	0.00		0.00				
23.00	0.00		0.00				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

24044-Drainage Calcs (PR)hcp

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24044 - Hydro CAD- Proposed Drainage Study-

OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

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Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment5S: DA-3	Runoff Area=8,696 sf 50.00% Impervious Runoff Depth=3.57" Tc=0.0 min CN=80 Runoff=0.82 cfs 2,584 cf
Subcatchment7S: DA-4	Runoff Area=3,414 sf 0.00% Impervious Runoff Depth=1.85" Tc=0.0 min CN=61 Runoff=0.16 cfs 525 cf
SubcatchmentA: DA -1	Runoff Area=2,045 sf 100.00% Impervious Runoff Depth=5.52" Tc=5.0 min CN=98 Runoff=0.23 cfs 941 cf
SubcatchmentB: DA-2	Runoff Area=58,672 sf 85.76% Impervious Runoff Depth=4.95" Tc=5.0 min CN=93 Runoff=6.22 cfs 24,182 cf
Pond 1.2: Outlet #1	Inflow=0.23 cfs 941 cf Primary=0.23 cfs 941 cf
Pond 4P: Stormtech	Peak Elev=97.68' Storage=19,433 cf Inflow=6.22 cfs 24,182 cf Outflow=0.11 cfs 6,859 cf
Pond 6P: Outlet #3	Peak Elev=97.12' Storage=1,475 cf Inflow=0.82 cfs 2,584 cf Outflow=0.03 cfs 1,651 cf
Pond 8P: Outlet #4	Inflow=0.16 cfs 525 cf Primary=0.16 cfs 525 cf
Pond 9P: Outlet #2	Inflow=0.00 cfs 0 cf Primary=0.00 cfs 0 cf
Pond 10P: Total	Inflow=0.16 cfs 525 cf Primary=0.16 cfs 525 cf

Total Runoff Area = 72,827 sf Runoff Volume = 28,232 cf Average Runoff Depth = 4.65"
22.13% Pervious = 16,117 sf 77.87% Impervious = 56,710 sf

24044-Drainage Calcs (PR)hcp

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24044 - Hydro CAD- Proposed Drainage Study-

OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

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Summary for Subcatchment 5S: DA-3

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

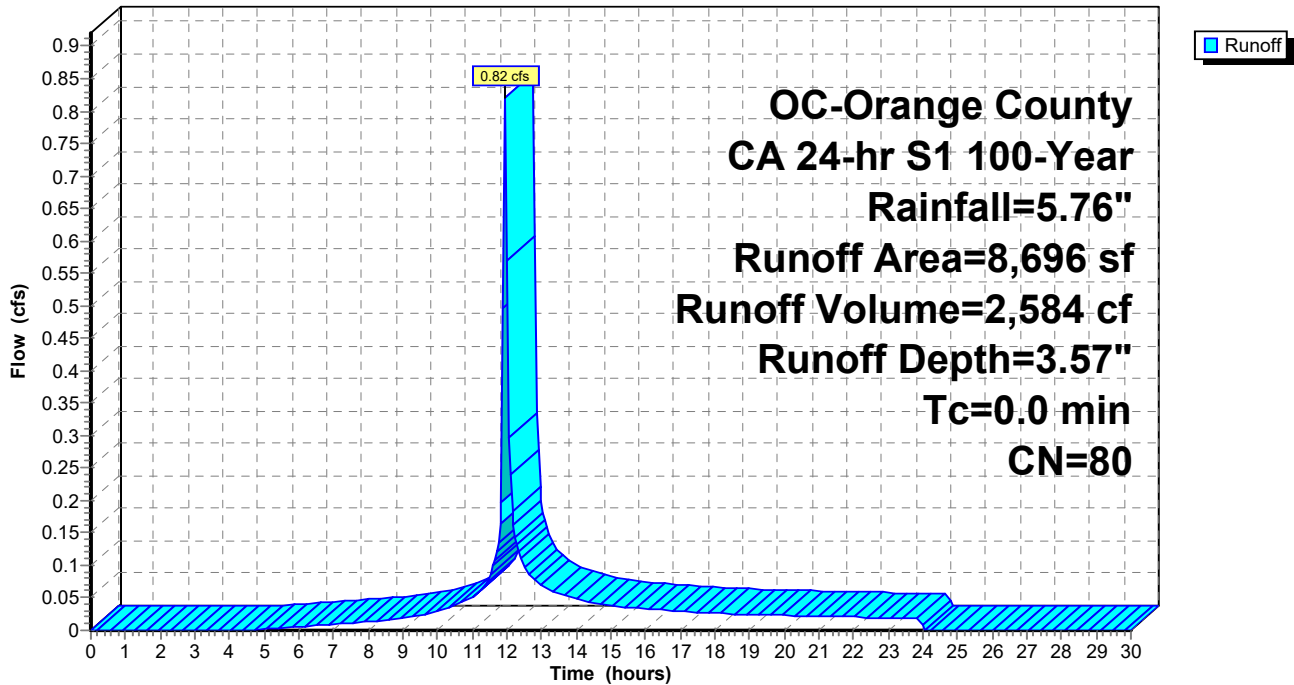
Runoff = 0.82 cfs @ 11.95 hrs, Volume= 2,584 cf, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

Area (sf)	CN	Description
4,348	98	Unconnected pavement, HSG B
4,348	61	>75% Grass cover, Good, HSG B
8,696	80	Weighted Average
4,348		50.00% Pervious Area
4,348		50.00% Impervious Area
4,348		100.00% Unconnected

Subcatchment 5S: DA-3

Hydrograph



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OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

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Hydrograph for Subcatchment 5S: DA-3

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	5.76	3.57	0.00
0.50	0.05	0.00	0.00	26.00	5.76	3.57	0.00
1.00	0.10	0.00	0.00	26.50	5.76	3.57	0.00
1.50	0.16	0.00	0.00	27.00	5.76	3.57	0.00
2.00	0.22	0.00	0.00	27.50	5.76	3.57	0.00
2.50	0.27	0.00	0.00	28.00	5.76	3.57	0.00
3.00	0.33	0.00	0.00	28.50	5.76	3.57	0.00
3.50	0.39	0.00	0.00	29.00	5.76	3.57	0.00
4.00	0.46	0.00	0.00	29.50	5.76	3.57	0.00
4.50	0.52	0.00	0.00	30.00	5.76	3.57	0.00
5.00	0.59	0.00	0.00				
5.50	0.66	0.01	0.00				
6.00	0.74	0.02	0.01				
6.50	0.81	0.04	0.01				
7.00	0.90	0.05	0.01				
7.50	0.98	0.08	0.01				
8.00	1.08	0.11	0.01				
8.50	1.18	0.14	0.02				
9.00	1.29	0.19	0.02				
9.50	1.41	0.24	0.02				
10.00	1.54	0.31	0.03				
10.50	1.70	0.39	0.04				
11.00	1.89	0.50	0.05				
11.50	2.15	0.65	0.08				
12.00	3.10	1.33	0.57				
12.50	3.64	1.75	0.10				
13.00	3.89	1.95	0.07				
13.50	4.07	2.10	0.06				
14.00	4.23	2.23	0.05				
14.50	4.36	2.34	0.04				
15.00	4.48	2.44	0.04				
15.50	4.59	2.54	0.04				
16.00	4.69	2.62	0.03				
16.50	4.78	2.70	0.03				
17.00	4.87	2.78	0.03				
17.50	4.95	2.85	0.03				
18.00	5.03	2.92	0.03				
18.50	5.10	2.98	0.03				
19.00	5.17	3.04	0.02				
19.50	5.24	3.10	0.02				
20.00	5.30	3.16	0.02				
20.50	5.37	3.22	0.02				
21.00	5.43	3.27	0.02				
21.50	5.49	3.32	0.02				
22.00	5.55	3.37	0.02				
22.50	5.60	3.42	0.02				
23.00	5.66	3.47	0.02				
23.50	5.71	3.52	0.02				
24.00	5.76	3.57	0.01				
24.50	5.76	3.57	0.00				
25.00	5.76	3.57	0.00				

24044-Drainage Calcs (PR)hcp

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Summary for Subcatchment 7S: DA-4

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

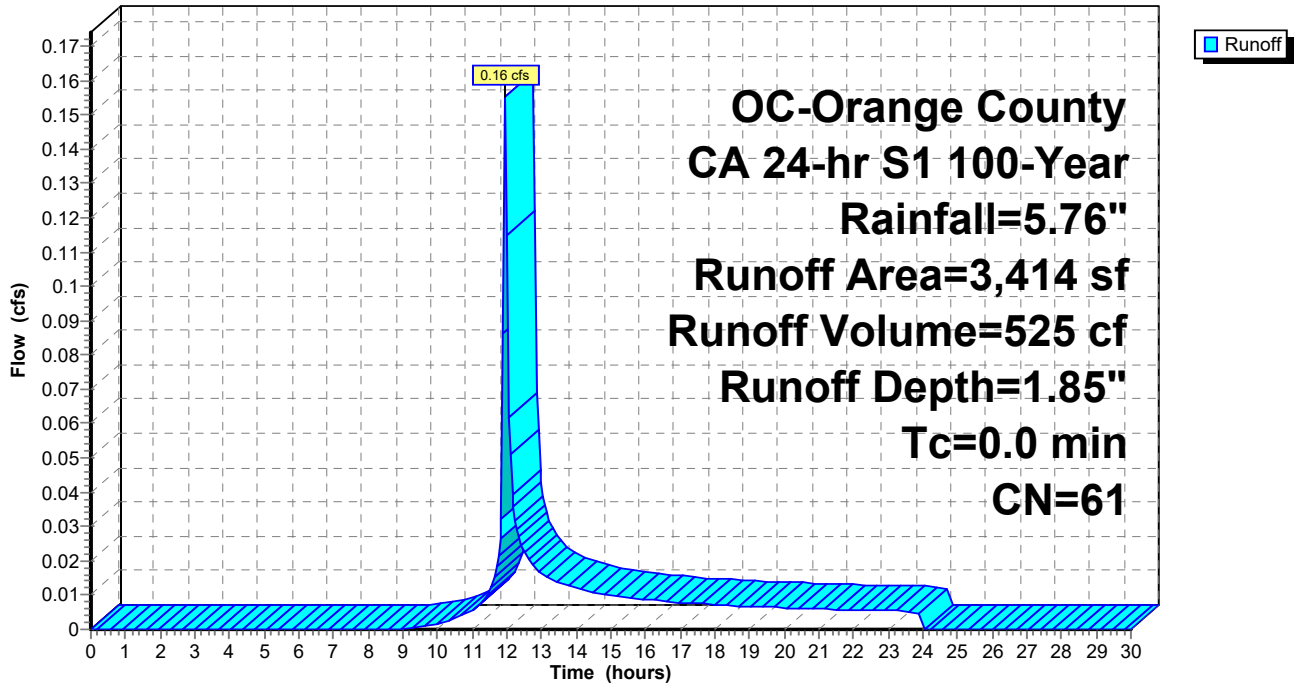
Runoff = 0.16 cfs @ 11.96 hrs, Volume= 525 cf, Depth= 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

Area (sf)	CN	Description
3,414	61	>75% Grass cover, Good, HSG B
3,414		100.00% Pervious Area

Subcatchment 7S: DA-4

Hydrograph



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OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

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Hydrograph for Subcatchment 7S: DA-4

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	5.76	1.85	0.00
0.50	0.05	0.00	0.00	26.00	5.76	1.85	0.00
1.00	0.10	0.00	0.00	26.50	5.76	1.85	0.00
1.50	0.16	0.00	0.00	27.00	5.76	1.85	0.00
2.00	0.22	0.00	0.00	27.50	5.76	1.85	0.00
2.50	0.27	0.00	0.00	28.00	5.76	1.85	0.00
3.00	0.33	0.00	0.00	28.50	5.76	1.85	0.00
3.50	0.39	0.00	0.00	29.00	5.76	1.85	0.00
4.00	0.46	0.00	0.00	29.50	5.76	1.85	0.00
4.50	0.52	0.00	0.00	30.00	5.76	1.85	0.00
5.00	0.59	0.00	0.00				
5.50	0.66	0.00	0.00				
6.00	0.74	0.00	0.00				
6.50	0.81	0.00	0.00				
7.00	0.90	0.00	0.00				
7.50	0.98	0.00	0.00				
8.00	1.08	0.00	0.00				
8.50	1.18	0.00	0.00				
9.00	1.29	0.00	0.00				
9.50	1.41	0.00	0.00				
10.00	1.54	0.01	0.00				
10.50	1.70	0.03	0.00				
11.00	1.89	0.05	0.01				
11.50	2.15	0.10	0.01				
12.00	3.10	0.40	0.11				
12.50	3.64	0.64	0.02				
13.00	3.89	0.76	0.02				
13.50	4.07	0.85	0.01				
14.00	4.23	0.93	0.01				
14.50	4.36	1.00	0.01				
15.00	4.48	1.07	0.01				
15.50	4.59	1.13	0.01				
16.00	4.69	1.19	0.01				
16.50	4.78	1.24	0.01				
17.00	4.87	1.29	0.01				
17.50	4.95	1.34	0.01				
18.00	5.03	1.38	0.01				
18.50	5.10	1.43	0.01				
19.00	5.17	1.47	0.01				
19.50	5.24	1.51	0.01				
20.00	5.30	1.56	0.01				
20.50	5.37	1.59	0.01				
21.00	5.43	1.63	0.01				
21.50	5.49	1.67	0.01				
22.00	5.55	1.71	0.01				
22.50	5.60	1.74	0.01				
23.00	5.66	1.78	0.01				
23.50	5.71	1.81	0.01				
24.00	5.76	1.85	0.00				
24.50	5.76	1.85	0.00				
25.00	5.76	1.85	0.00				

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Summary for Subcatchment A: DA -1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.23 cfs @ 12.02 hrs, Volume= 941 cf, Depth= 5.52"

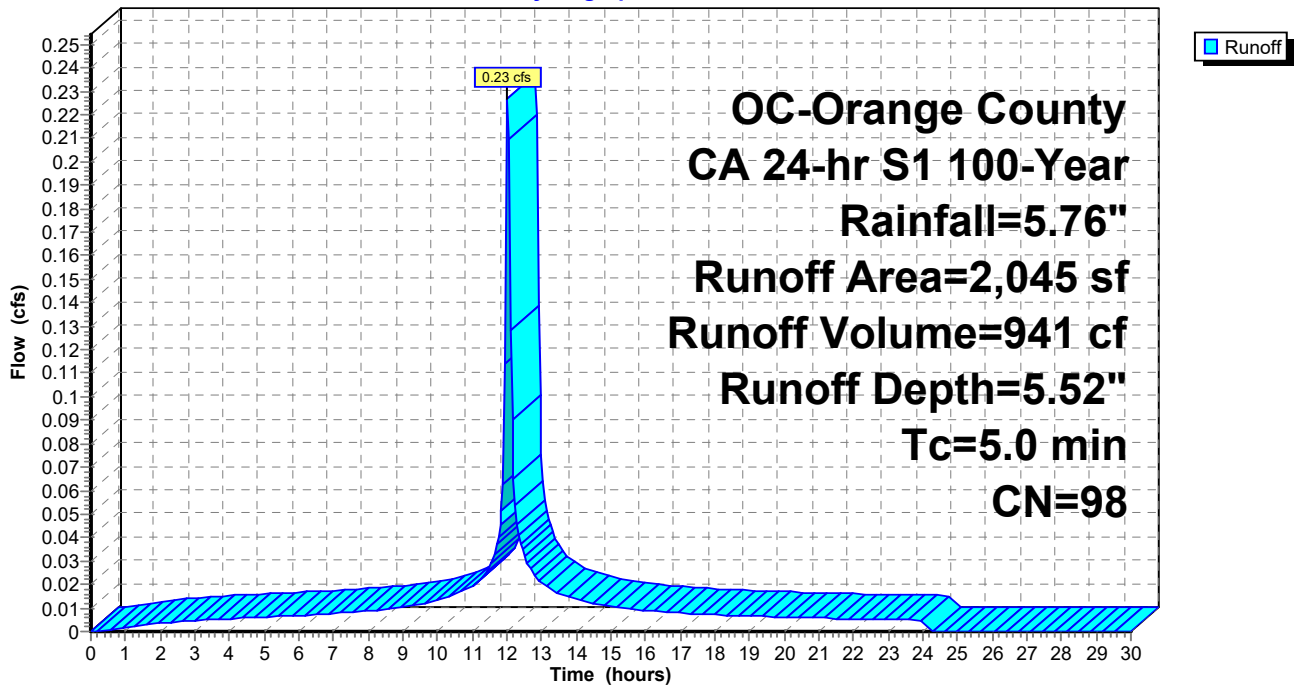
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

Area (sf)	CN	Description
2,045	98	Paved parking, HSG B
2,045		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Entire Site

Subcatchment A: DA -1

Hydrograph



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Hydrograph for Subcatchment A: DA -1

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	5.76	5.52	0.00
0.50	0.05	0.00	0.00	26.00	5.76	5.52	0.00
1.00	0.10	0.02	0.00	26.50	5.76	5.52	0.00
1.50	0.16	0.04	0.00	27.00	5.76	5.52	0.00
2.00	0.22	0.08	0.00	27.50	5.76	5.52	0.00
2.50	0.27	0.12	0.00	28.00	5.76	5.52	0.00
3.00	0.33	0.17	0.00	28.50	5.76	5.52	0.00
3.50	0.39	0.22	0.01	29.00	5.76	5.52	0.00
4.00	0.46	0.28	0.01	29.50	5.76	5.52	0.00
4.50	0.52	0.34	0.01	30.00	5.76	5.52	0.00
5.00	0.59	0.40	0.01				
5.50	0.66	0.47	0.01				
6.00	0.74	0.54	0.01				
6.50	0.81	0.61	0.01				
7.00	0.90	0.69	0.01				
7.50	0.98	0.78	0.01				
8.00	1.08	0.87	0.01				
8.50	1.18	0.96	0.01				
9.00	1.29	1.07	0.01				
9.50	1.41	1.19	0.01				
10.00	1.54	1.32	0.01				
10.50	1.70	1.47	0.02				
11.00	1.89	1.66	0.02				
11.50	2.15	1.92	0.03				
12.00	3.10	2.87	0.22				
12.50	3.64	3.40	0.03				
13.00	3.89	3.65	0.02				
13.50	4.07	3.84	0.02				
14.00	4.23	3.99	0.01				
14.50	4.36	4.13	0.01				
15.00	4.48	4.24	0.01				
15.50	4.59	4.35	0.01				
16.00	4.69	4.45	0.01				
16.50	4.78	4.54	0.01				
17.00	4.87	4.63	0.01				
17.50	4.95	4.71	0.01				
18.00	5.03	4.79	0.01				
18.50	5.10	4.86	0.01				
19.00	5.17	4.93	0.01				
19.50	5.24	5.00	0.01				
20.00	5.30	5.07	0.01				
20.50	5.37	5.13	0.01				
21.00	5.43	5.19	0.01				
21.50	5.49	5.25	0.01				
22.00	5.55	5.31	0.01				
22.50	5.60	5.36	0.01				
23.00	5.66	5.42	0.01				
23.50	5.71	5.47	0.00				
24.00	5.76	5.52	0.00				
24.50	5.76	5.52	0.00				
25.00	5.76	5.52	0.00				

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Summary for Subcatchment B: DA-2

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.22 cfs @ 12.02 hrs, Volume= 24,182 cf, Depth= 4.95"

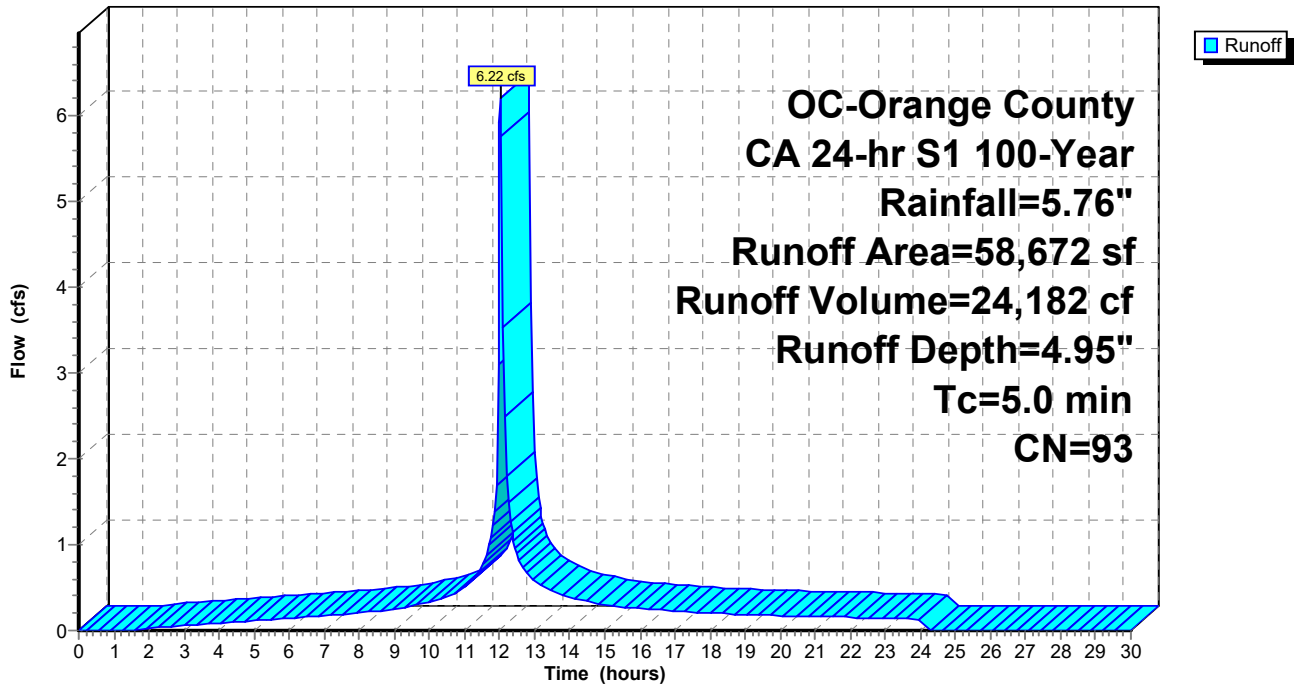
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

Area (sf)	CN	Description
50,317	98	Unconnected pavement, HSG A
8,355	61	>75% Grass cover, Good, HSG B
58,672	93	Weighted Average
8,355		14.24% Pervious Area
50,317		85.76% Impervious Area
50,317		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Subcatchment B: DA-2

Hydrograph



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Hydrograph for Subcatchment B: DA-2

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)	Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
0.00	0.00	0.00	0.00	25.50	5.76	4.95	0.00
0.50	0.05	0.00	0.00	26.00	5.76	4.95	0.00
1.00	0.10	0.00	0.00	26.50	5.76	4.95	0.00
1.50	0.16	0.00	0.00	27.00	5.76	4.95	0.00
2.00	0.22	0.01	0.02	27.50	5.76	4.95	0.00
2.50	0.27	0.02	0.04	28.00	5.76	4.95	0.00
3.00	0.33	0.04	0.06	28.50	5.76	4.95	0.00
3.50	0.39	0.06	0.07	29.00	5.76	4.95	0.00
4.00	0.46	0.09	0.08	29.50	5.76	4.95	0.00
4.50	0.52	0.12	0.10	30.00	5.76	4.95	0.00
5.00	0.59	0.16	0.11				
5.50	0.66	0.21	0.13				
6.00	0.74	0.26	0.14				
6.50	0.81	0.31	0.15				
7.00	0.90	0.37	0.17				
7.50	0.98	0.44	0.19				
8.00	1.08	0.51	0.21				
8.50	1.18	0.59	0.23				
9.00	1.29	0.68	0.26				
9.50	1.41	0.79	0.29				
10.00	1.54	0.90	0.33				
10.50	1.70	1.04	0.40				
11.00	1.89	1.21	0.51				
11.50	2.15	1.45	0.76				
12.00	3.10	2.35	5.93				
12.50	3.64	2.87	0.89				
13.00	3.89	3.11	0.58				
13.50	4.07	3.29	0.45				
14.00	4.23	3.44	0.38				
14.50	4.36	3.57	0.34				
15.00	4.48	3.69	0.30				
15.50	4.59	3.79	0.28				
16.00	4.69	3.89	0.26				
16.50	4.78	3.98	0.24				
17.00	4.87	4.07	0.23				
17.50	4.95	4.15	0.21				
18.00	5.03	4.22	0.20				
18.50	5.10	4.30	0.19				
19.00	5.17	4.37	0.19				
19.50	5.24	4.43	0.18				
20.00	5.30	4.50	0.17				
20.50	5.37	4.56	0.17				
21.00	5.43	4.62	0.16				
21.50	5.49	4.68	0.16				
22.00	5.55	4.73	0.15				
22.50	5.60	4.79	0.15				
23.00	5.66	4.84	0.14				
23.50	5.71	4.89	0.14				
24.00	5.76	4.95	0.14				
24.50	5.76	4.95	0.00				
25.00	5.76	4.95	0.00				

Summary for Pond 1.2: Outlet #1

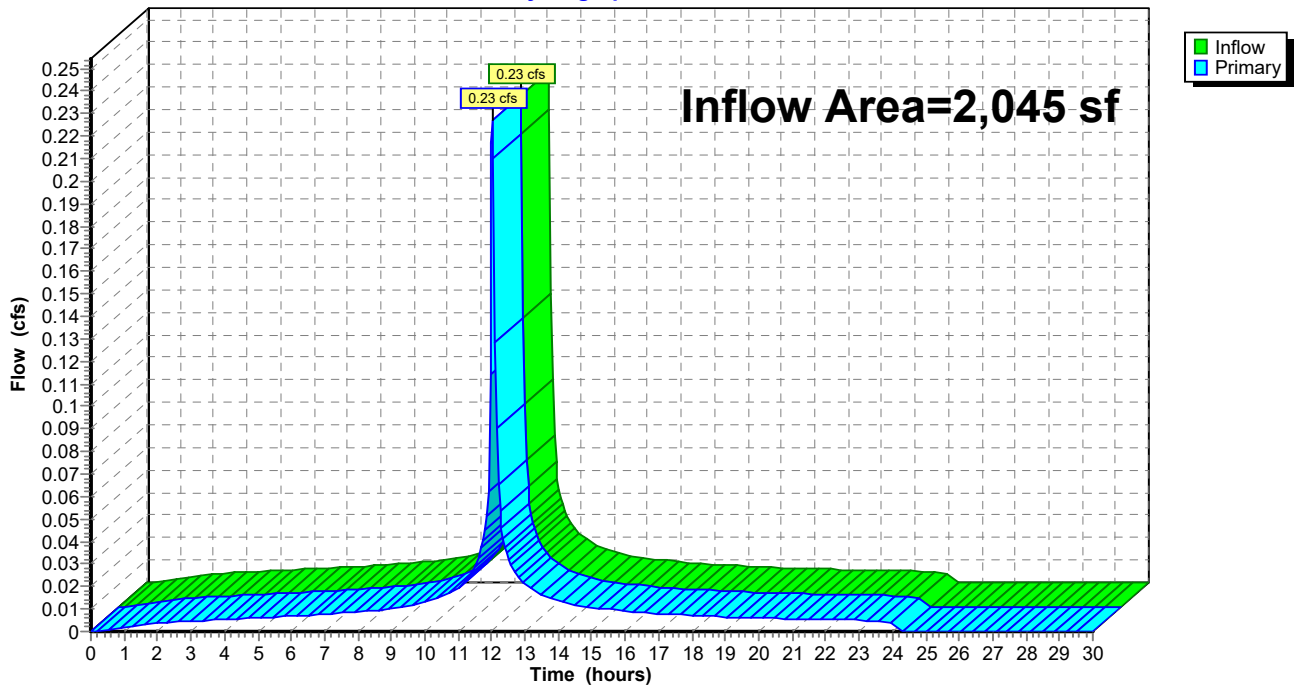
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2,045 sf, 100.00% Impervious, Inflow Depth = 5.52" for 100-Year event
Inflow = 0.23 cfs @ 12.02 hrs, Volume= 941 cf
Primary = 0.23 cfs @ 12.02 hrs, Volume= 941 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 1.2: Outlet #1

Hydrograph



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Hydrograph for Pond 1.2: Outlet #1

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.01		0.01	29.00	0.00		0.00
4.00	0.01		0.01	29.50	0.00		0.00
4.50	0.01		0.01	30.00	0.00		0.00
5.00	0.01		0.01				
5.50	0.01		0.01				
6.00	0.01		0.01				
6.50	0.01		0.01				
7.00	0.01		0.01				
7.50	0.01		0.01				
8.00	0.01		0.01				
8.50	0.01		0.01				
9.00	0.01		0.01				
9.50	0.01		0.01				
10.00	0.01		0.01				
10.50	0.02		0.02				
11.00	0.02		0.02				
11.50	0.03		0.03				
12.00	0.22		0.22				
12.50	0.03		0.03				
13.00	0.02		0.02				
13.50	0.02		0.02				
14.00	0.01		0.01				
14.50	0.01		0.01				
15.00	0.01		0.01				
15.50	0.01		0.01				
16.00	0.01		0.01				
16.50	0.01		0.01				
17.00	0.01		0.01				
17.50	0.01		0.01				
18.00	0.01		0.01				
18.50	0.01		0.01				
19.00	0.01		0.01				
19.50	0.01		0.01				
20.00	0.01		0.01				
20.50	0.01		0.01				
21.00	0.01		0.01				
21.50	0.01		0.01				
22.00	0.01		0.01				
22.50	0.01		0.01				
23.00	0.01		0.01				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

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OC-Orange County, CA 24-hr S1 100-Year Rainfall=5.76"

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Summary for Pond 4P: Stormtech

Inflow Area = 58,672 sf, 85.76% Impervious, Inflow Depth = 4.95" for 100-Year event
 Inflow = 6.22 cfs @ 12.02 hrs, Volume= 24,182 cf
 Outflow = 0.11 cfs @ 24.04 hrs, Volume= 6,859 cf, Atten= 98%, Lag= 720.8 min
 Discarded = 0.11 cfs @ 24.04 hrs, Volume= 6,859 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.68' @ 24.04 hrs Surf.Area= 6,041 sf Storage= 19,433 cf

Plug-Flow detention time= 696.7 min calculated for 6,847 cf (28% of inflow)
 Center-of-Mass det. time= 425.1 min (1,210.3 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.00'	2,567 cf	15.58'W x 84.57'L x 6.75'H Field A 8,896 cf Overall - 2,479 cf Embedded = 6,417 cf x 40.0% Voids
#2A	92.00'	2,479 cf	ADS_StormTech MC-3500 d +Cap x 22 Inside #1 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 22 Chambers in 2 Rows Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
#3B	91.00'	3,660 cf	24.25'W x 117.54'L x 4.50'H Field B 12,826 cf Overall - 3,675 cf Embedded = 9,151 cf x 40.0% Voids
#4B	92.00'	3,675 cf	ADS_StormTech SC-740 +Cap x 80 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 80 Chambers in 5 Rows
#5C	91.00'	3,235 cf	29.92'W x 55.89'L x 6.75'H Field C 11,286 cf Overall - 3,198 cf Embedded = 8,088 cf x 40.0% Voids
#6C	92.00'	3,198 cf	ADS_StormTech MC-3500 d +Cap x 28 Inside #5 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 28 Chambers in 4 Rows Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf
#7D	91.00'	430 cf	15.58'W x 12.87'L x 6.75'H Field D 1,354 cf Overall - 280 cf Embedded = 1,074 cf x 40.0% Voids
#8D	92.00'	280 cf	ADS_StormTech MC-3500 d +Cap x 2 Inside #7 Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap 2 Chambers in 2 Rows Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf
		19,523 cf	Total Available Storage

Storage Group A created with Chamber Wizard
 Storage Group B created with Chamber Wizard
 Storage Group C created with Chamber Wizard
 Storage Group D created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.00'	1.440 in/hr Exfiltration over Wetted area from 91.00' - 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 6,041 sf
#2	Discarded	93.00'	0.480 in/hr Exfiltration over Wetted area above 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 7,466 sf

Discarded OutFlow Max=0.11 cfs @ 24.04 hrs HW=97.68' (Free Discharge)
 1=Exfiltration (Controls 0.07 cfs)
 2=Exfiltration (Controls 0.04 cfs)

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Pond 4P: Stormtech - Chamber Wizard Field A

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

11 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 82.57' Row Length +12.0" End Stone x 2 = 84.57' Base Length

2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 12.0" Side Stone x 2 = 15.58' Base Width

12.0" Stone Base + 45.0" Chamber Height + 24.0" Stone Cover = 6.75' Field Height

22 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 2,478.5 cf Chamber Storage

8,895.7 cf Field - 2,478.5 cf Chambers = 6,417.2 cf Stone x 40.0% Voids = 2,566.9 cf Stone Storage

Chamber Storage + Stone Storage = 5,045.4 cf = 0.116 af

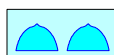
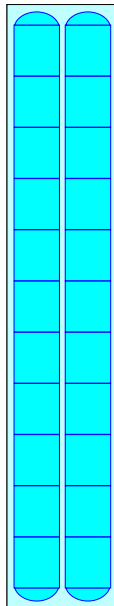
Overall Storage Efficiency = 56.7%

Overall System Size = 84.57' x 15.58' x 6.75'

22 Chambers

329.5 cy Field

237.7 cy Stone



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Pond 4P: Stormtech - Chamber Wizard Field B

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C Row Spacing

16 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 115.54' Row Length +12.0" End Stone x 2 = 117.54' Base Length

5 Rows x 51.0" Wide + 6.0" Spacing x 4 + 6.0" Side Stone x 2 = 24.25' Base Width

12.0" Stone Base + 30.0" Chamber Height + 12.0" Stone Cover = 4.50' Field Height

80 Chambers x 45.9 cf = 3,675.2 cf Chamber Storage

12,826.2 cf Field - 3,675.2 cf Chambers = 9,151.0 cf Stone x 40.0% Voids = 3,660.4 cf Stone Storage

Chamber Storage + Stone Storage = 7,335.6 cf = 0.168 af

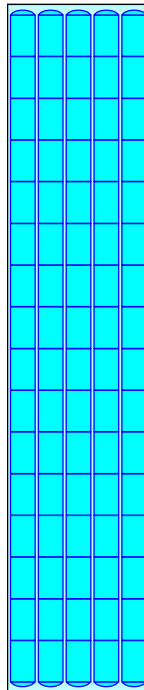
Overall Storage Efficiency = 57.2%

Overall System Size = 117.54' x 24.25' x 4.50'

80 Chambers

475.0 cy Field

338.9 cy Stone



Pond 4P: Stormtech - Chamber Wizard Field C

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 4 rows = 119.2 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

7 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 53.89' Row Length +12.0" End Stone x 2 = 55.89' Base Length

4 Rows x 77.0" Wide + 9.0" Spacing x 3 + 12.0" Side Stone x 2 = 29.92' Base Width

12.0" Stone Base + 45.0" Chamber Height + 24.0" Stone Cover = 6.75' Field Height

28 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 4 Rows = 3,197.9 cf Chamber Storage

11,286.3 cf Field - 3,197.9 cf Chambers = 8,088.4 cf Stone x 40.0% Voids = 3,235.4 cf Stone Storage

Chamber Storage + Stone Storage = 6,433.2 cf = 0.148 af

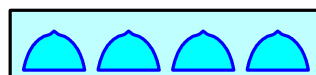
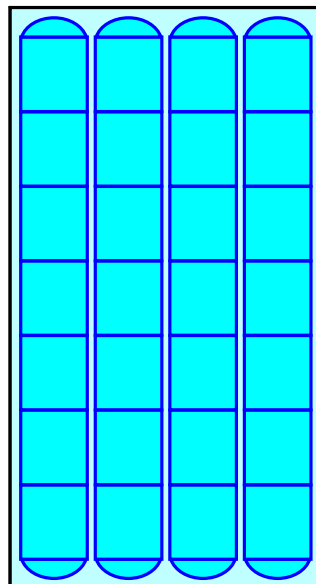
Overall Storage Efficiency = 57.0%

Overall System Size = 55.89' x 29.92' x 6.75'

28 Chambers

418.0 cy Field

299.6 cy Stone



Pond 4P: Stormtech - Chamber Wizard Field D

Chamber Model = ADS_StormTechMC-3500 d +Cap (ADS StormTech®MC-3500 d rev 03/14 with Cap volume)

Effective Size= 70.4"W x 45.0"H => 15.33 sf x 7.17'L = 110.0 cf

Overall Size= 77.0"W x 45.0"H x 7.50'L with 0.33' Overlap

Cap Storage= +14.9 cf x 2 x 2 rows = 59.6 cf

77.0" Wide + 9.0" Spacing = 86.0" C-C Row Spacing

1 Chambers/Row x 7.17' Long +1.85' Cap Length x 2 = 10.87' Row Length +12.0" End Stone x 2 = 12.87' Base Length

2 Rows x 77.0" Wide + 9.0" Spacing x 1 + 12.0" Side Stone x 2 = 15.58' Base Width

12.0" Stone Base + 45.0" Chamber Height + 24.0" Stone Cover = 6.75' Field Height

2 Chambers x 110.0 cf + 14.9 cf Cap Volume x 2 x 2 Rows = 279.5 cf Chamber Storage

1,353.8 cf Field - 279.5 cf Chambers = 1,074.3 cf Stone x 40.0% Voids = 429.7 cf Stone Storage

Chamber Storage + Stone Storage = 709.2 cf = 0.016 af

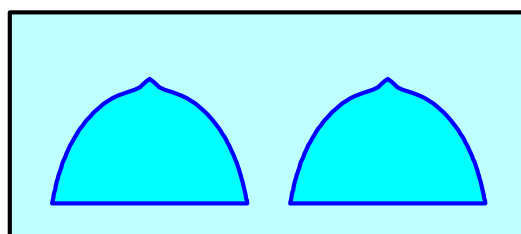
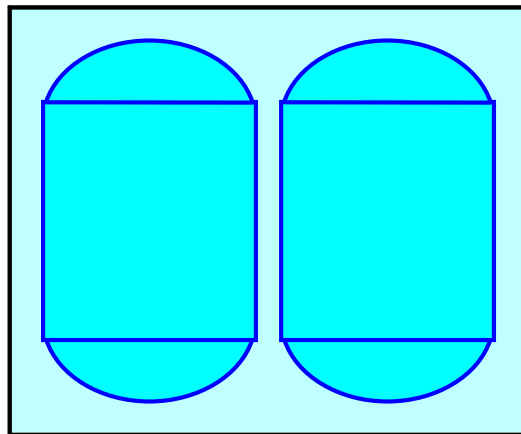
Overall Storage Efficiency = 52.4%

Overall System Size = 12.87' x 15.58' x 6.75'

2 Chambers

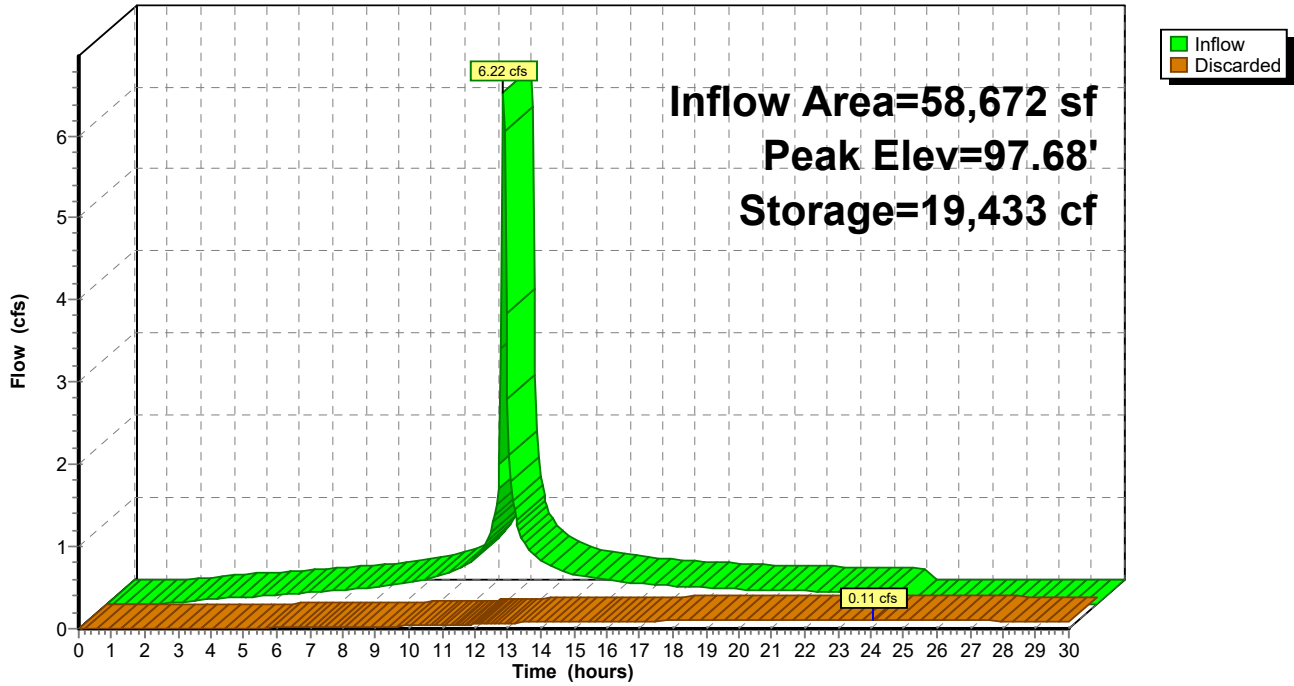
50.1 cy Field

39.8 cy Stone



Pond 4P: Stormtech

Hydrograph



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Hydrograph for Pond 4P: Stormtech

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	91.00	0.00
1.00	0.00	0	91.00	0.00
2.00	0.02	19	91.01	0.00
3.00	0.06	154	91.06	0.00
4.00	0.08	397	91.16	0.00
5.00	0.11	732	91.30	0.01
6.00	0.14	1,150	91.48	0.01
7.00	0.17	1,654	91.68	0.02
8.00	0.21	2,256	91.93	0.02
9.00	0.26	2,988	92.11	0.03
10.00	0.33	3,927	92.30	0.03
11.00	0.51	5,263	92.57	0.04
12.00	5.93	8,968	93.35	0.06
13.00	0.58	14,123	94.65	0.07
14.00	0.38	15,520	95.10	0.08
15.00	0.30	16,451	95.43	0.08
16.00	0.26	17,146	95.89	0.09
17.00	0.23	17,686	96.31	0.09
18.00	0.20	18,116	96.65	0.10
19.00	0.19	18,464	96.92	0.10
20.00	0.17	18,747	97.14	0.10
21.00	0.16	18,976	97.32	0.10
22.00	0.15	19,163	97.47	0.11
23.00	0.14	19,312	97.58	0.11
24.00	0.14	19,430	97.68	0.11
25.00	0.00	19,084	97.41	0.11
26.00	0.00	18,711	97.11	0.10
27.00	0.00	18,350	96.83	0.10
28.00	0.00	18,000	96.56	0.10
29.00	0.00	17,661	96.29	0.09
30.00	0.00	17,331	96.03	0.09

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Summary for Pond 6P: Outlet #3

Inflow Area = 8,696 sf, 50.00% Impervious, Inflow Depth = 3.57" for 100-Year event
 Inflow = 0.82 cfs @ 11.95 hrs, Volume= 2,584 cf
 Outflow = 0.03 cfs @ 18.12 hrs, Volume= 1,651 cf, Atten= 97%, Lag= 370.2 min
 Discarded = 0.03 cfs @ 18.12 hrs, Volume= 1,651 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
 Peak Elev= 97.12' @ 18.12 hrs Surf.Area= 490 sf Storage= 1,475 cf

Plug-Flow detention time= 503.8 min calculated for 1,651 cf (64% of inflow)
 Center-of-Mass det. time= 357.0 min (1,201.1 - 844.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.00'	545 cf	6.25'W x 39.22'L x 6.50'H Field E 1,593 cf Overall - 230 cf Embedded = 1,363 cf x 40.0% Voids
#2A	93.00'	230 cf	ADS_StormTech SC-740 +Cap x 5 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
#3B	91.00'	545 cf	6.25'W x 39.22'L x 6.50'H Field F 1,593 cf Overall - 230 cf Embedded = 1,363 cf x 40.0% Voids
#4B	93.00'	230 cf	ADS_StormTech SC-740 +Cap x 5 Inside #3 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		1,550 cf	Total Available Storage

Storage Group A created with Chamber Wizard
 Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	91.00'	1.440 in/hr Exfiltration over Wetted area from 91.00' - 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 490 sf
#2	Discarded	93.00'	0.430 in/hr Exfiltration over Wetted area above 93.00' Conductivity to Groundwater Elevation = 81.00' Excluded Wetted area = 854 sf

Discarded OutFlow Max=0.03 cfs @ 18.12 hrs HW=97.12' (Free Discharge)

- 1=Exfiltration (Controls 0.02 cfs)
- 2=Exfiltration (Controls 0.01 cfs)

Pond 6P: Outlet #3 - Chamber Wizard Field E

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

5 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 37.22' Row Length + 12.0" End Stone x 2 = 39.22'
Base Length

1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width

24.0" Stone Base + 30.0" Chamber Height + 24.0" Stone Cover = 6.50' Field Height

5 Chambers x 45.9 cf = 229.7 cf Chamber Storage

1,593.2 cf Field - 229.7 cf Chambers = 1,363.5 cf Stone x 40.0% Voids = 545.4 cf Stone Storage

Chamber Storage + Stone Storage = 775.1 cf = 0.018 af

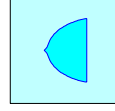
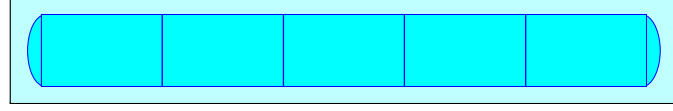
Overall Storage Efficiency = 48.7%

Overall System Size = 39.22' x 6.25' x 6.50'

5 Chambers

59.0 cy Field

50.5 cy Stone



Pond 6P: Outlet #3 - Chamber Wizard Field F

Chamber Model = ADS_StormTechSC-740 +Cap (ADS StormTech®SC-740 with cap length)

Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf

Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

5 Chambers/Row x 7.12' Long +0.81' Cap Length x 2 = 37.22' Row Length +12.0" End Stone x 2 = 39.22'
Base Length

1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width

24.0" Stone Base + 30.0" Chamber Height + 24.0" Stone Cover = 6.50' Field Height

5 Chambers x 45.9 cf = 229.7 cf Chamber Storage

1,593.2 cf Field - 229.7 cf Chambers = 1,363.5 cf Stone x 40.0% Voids = 545.4 cf Stone Storage

Chamber Storage + Stone Storage = 775.1 cf = 0.018 af

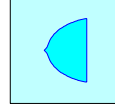
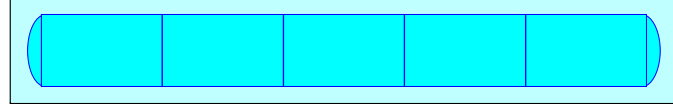
Overall Storage Efficiency = 48.7%

Overall System Size = 39.22' x 6.25' x 6.50'

5 Chambers

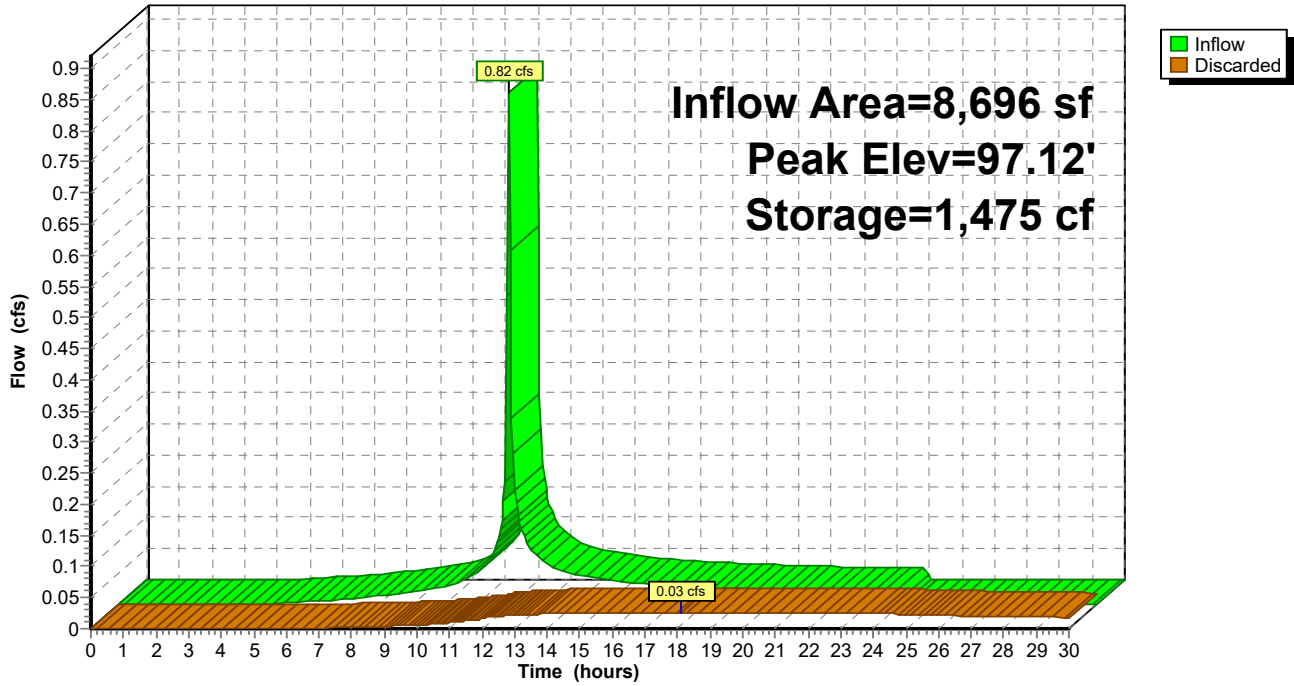
59.0 cy Field

50.5 cy Stone



Pond 6P: Outlet #3

Hydrograph



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Hydrograph for Pond 6P: Outlet #3

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Discarded (cfs)
0.00	0.00	0	91.00	0.00
1.00	0.00	0	91.00	0.00
2.00	0.00	0	91.00	0.00
3.00	0.00	0	91.00	0.00
4.00	0.00	0	91.00	0.00
5.00	0.00	2	91.01	0.00
6.00	0.01	14	91.07	0.00
7.00	0.01	36	91.18	0.00
8.00	0.01	69	91.35	0.00
9.00	0.02	117	91.59	0.00
10.00	0.03	185	91.94	0.01
11.00	0.05	295	92.50	0.01
12.00	0.57	825	94.27	0.02
13.00	0.07	1,230	95.87	0.02
14.00	0.05	1,350	96.48	0.02
15.00	0.04	1,415	96.81	0.03
16.00	0.03	1,451	96.99	0.03
17.00	0.03	1,469	97.08	0.03
18.00	0.03	1,475	97.11	0.03
19.00	0.02	1,472	97.10	0.03
20.00	0.02	1,463	97.05	0.03
21.00	0.02	1,448	96.98	0.03
22.00	0.02	1,431	96.89	0.03
23.00	0.02	1,410	96.79	0.03
24.00	0.01	1,387	96.67	0.02
25.00	0.00	1,301	96.23	0.02
26.00	0.00	1,219	95.81	0.02
27.00	0.00	1,143	95.42	0.02
28.00	0.00	1,070	95.10	0.02
29.00	0.00	1,001	94.85	0.02
30.00	0.00	934	94.62	0.02

Summary for Pond 8P: Outlet #4

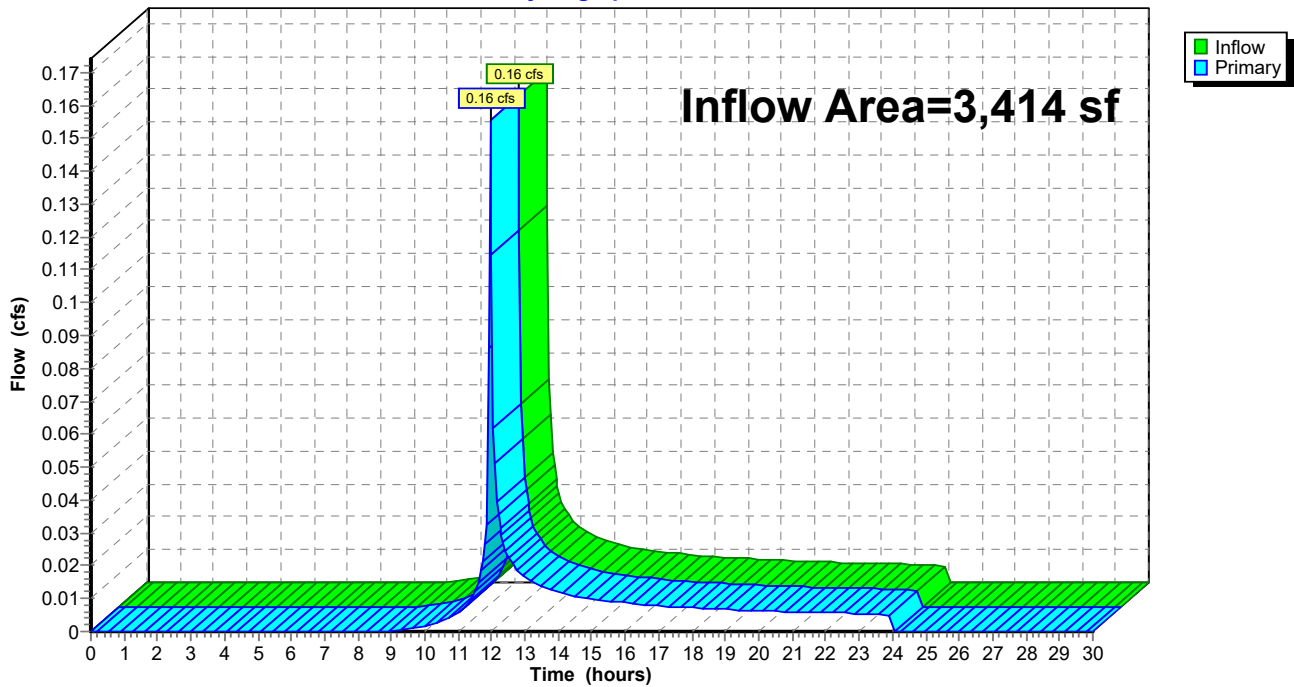
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 3,414 sf, 0.00% Impervious, Inflow Depth = 1.85" for 100-Year event
Inflow = 0.16 cfs @ 11.96 hrs, Volume= 525 cf
Primary = 0.16 cfs @ 11.96 hrs, Volume= 525 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 8P: Outlet #4

Hydrograph



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Hydrograph for Pond 8P: Outlet #4

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.01		0.01				
11.50	0.01		0.01				
12.00	0.11		0.11				
12.50	0.02		0.02				
13.00	0.02		0.02				
13.50	0.01		0.01				
14.00	0.01		0.01				
14.50	0.01		0.01				
15.00	0.01		0.01				
15.50	0.01		0.01				
16.00	0.01		0.01				
16.50	0.01		0.01				
17.00	0.01		0.01				
17.50	0.01		0.01				
18.00	0.01		0.01				
18.50	0.01		0.01				
19.00	0.01		0.01				
19.50	0.01		0.01				
20.00	0.01		0.01				
20.50	0.01		0.01				
21.00	0.01		0.01				
21.50	0.01		0.01				
22.00	0.01		0.01				
22.50	0.01		0.01				
23.00	0.01		0.01				
23.50	0.01		0.01				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

Summary for Pond 9P: Outlet #2

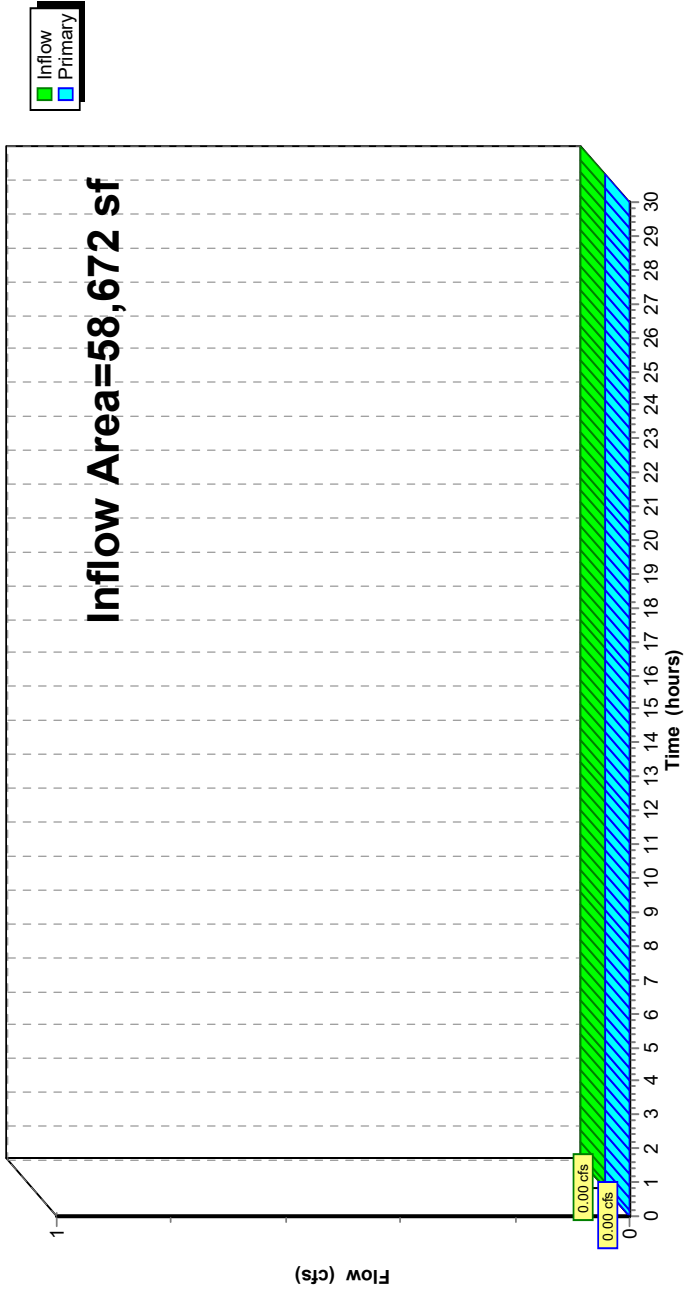
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 58,672 sf, 85.76% Impervious, Inflow Depth = 0.00" for 100-Year event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 9P: Outlet #2

Hydrograph



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Hydrograph for Pond 9P: Outlet #2

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.00		0.00				
11.50	0.00		0.00				
12.00	0.00		0.00				
12.50	0.00		0.00				
13.00	0.00		0.00				
13.50	0.00		0.00				
14.00	0.00		0.00				
14.50	0.00		0.00				
15.00	0.00		0.00				
15.50	0.00		0.00				
16.00	0.00		0.00				
16.50	0.00		0.00				
17.00	0.00		0.00				
17.50	0.00		0.00				
18.00	0.00		0.00				
18.50	0.00		0.00				
19.00	0.00		0.00				
19.50	0.00		0.00				
20.00	0.00		0.00				
20.50	0.00		0.00				
21.00	0.00		0.00				
21.50	0.00		0.00				
22.00	0.00		0.00				
22.50	0.00		0.00				
23.00	0.00		0.00				
23.50	0.00		0.00				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				

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Summary for Pond 10P: Total

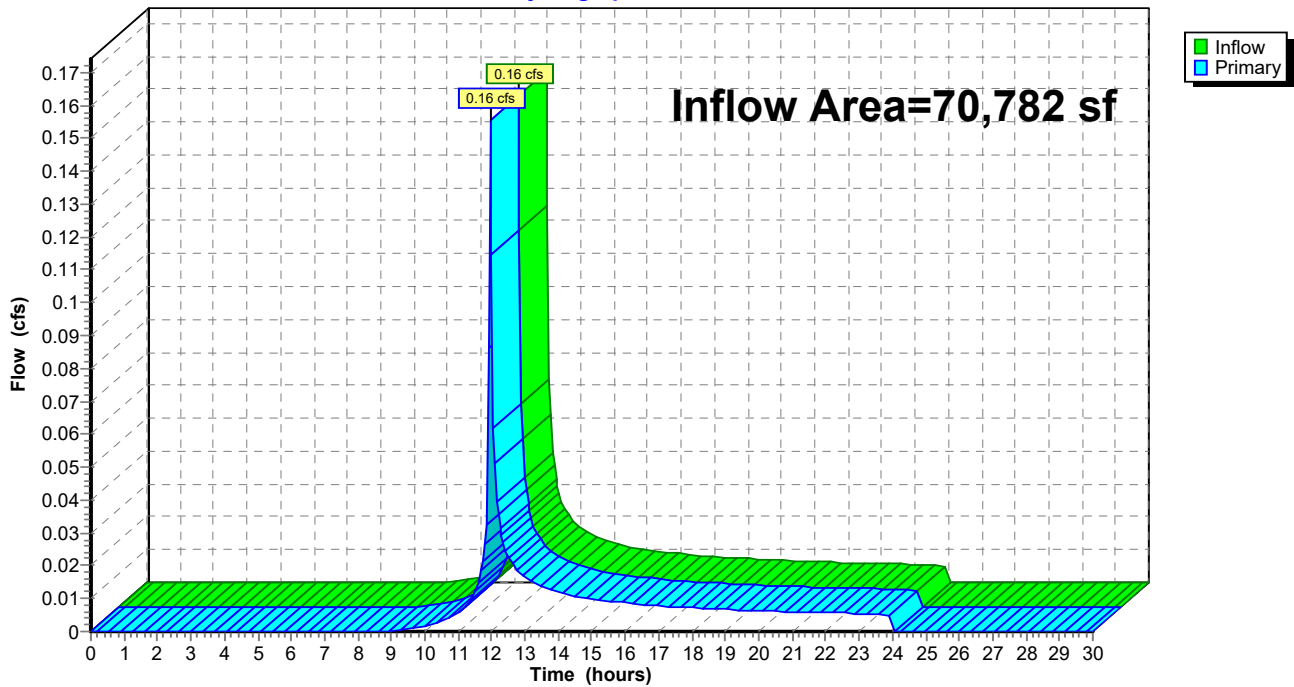
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 70,782 sf, 77.23% Impervious, Inflow Depth = 0.09" for 100-Year event
Inflow = 0.16 cfs @ 11.96 hrs, Volume= 525 cf
Primary = 0.16 cfs @ 11.96 hrs, Volume= 525 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Pond 10P: Total

Hydrograph



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Hydrograph for Pond 10P: Total

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
0.00	0.00		0.00	25.50	0.00		0.00
0.50	0.00		0.00	26.00	0.00		0.00
1.00	0.00		0.00	26.50	0.00		0.00
1.50	0.00		0.00	27.00	0.00		0.00
2.00	0.00		0.00	27.50	0.00		0.00
2.50	0.00		0.00	28.00	0.00		0.00
3.00	0.00		0.00	28.50	0.00		0.00
3.50	0.00		0.00	29.00	0.00		0.00
4.00	0.00		0.00	29.50	0.00		0.00
4.50	0.00		0.00	30.00	0.00		0.00
5.00	0.00		0.00				
5.50	0.00		0.00				
6.00	0.00		0.00				
6.50	0.00		0.00				
7.00	0.00		0.00				
7.50	0.00		0.00				
8.00	0.00		0.00				
8.50	0.00		0.00				
9.00	0.00		0.00				
9.50	0.00		0.00				
10.00	0.00		0.00				
10.50	0.00		0.00				
11.00	0.01		0.01				
11.50	0.01		0.01				
12.00	0.11		0.11				
12.50	0.02		0.02				
13.00	0.02		0.02				
13.50	0.01		0.01				
14.00	0.01		0.01				
14.50	0.01		0.01				
15.00	0.01		0.01				
15.50	0.01		0.01				
16.00	0.01		0.01				
16.50	0.01		0.01				
17.00	0.01		0.01				
17.50	0.01		0.01				
18.00	0.01		0.01				
18.50	0.01		0.01				
19.00	0.01		0.01				
19.50	0.01		0.01				
20.00	0.01		0.01				
20.50	0.01		0.01				
21.00	0.01		0.01				
21.50	0.01		0.01				
22.00	0.01		0.01				
22.50	0.01		0.01				
23.00	0.01		0.01				
23.50	0.01		0.01				
24.00	0.00		0.00				
24.50	0.00		0.00				
25.00	0.00		0.00				